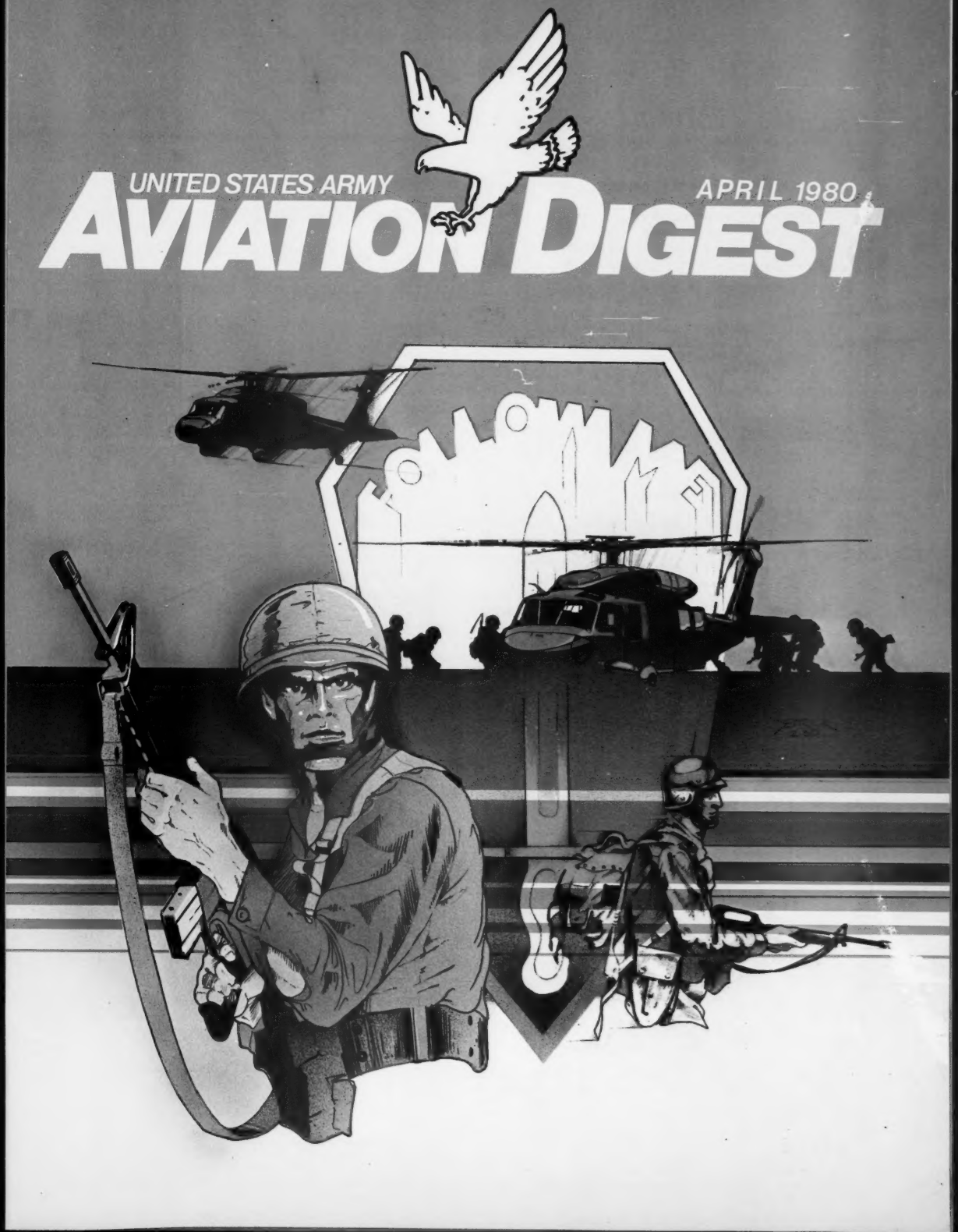
UNITED STATES ARMY

AVIATION DIGEST

APRIL 1980



APRIL 1980 • VOLUME 26 • NUMBER 4

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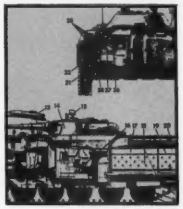
Inside Back Cover: **Foreign Object Damage**

Cover: **In this issue featuring the Infantry Center, the cover illustrates the increased flexibility available to the Infantryman through the Black Hawk, the first helicopter intended—from concept to production—to provide the ground Soldier, with his equipment, a degree of mobility only hoped for until now.**
Illustration by David Deitrick



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Richard K. Tierney
Editor

The mission of the ***U.S. Army Aviation Digest (USPS 415-350)*** is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

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ARMY AVIATION & INFANTRY

THIS MONTH and next the *Aviation Digest* is proud to feature Infantry and aviation. Major General David E. Grange Jr., Commandant of the U.S. Army Infantry School, Ft. Benning, GA, opens the Infantry series on the next page. He recognizes the value of the helicopter to airmobile operations and cites the value of UH-60 Black Hawks to frontline commanders.

Other Infantry/Army aviation features in this issue are "HASTE: Helicopter Survivability" by Major Arthur L. Greaney; "Army Aviation And The Active Defense" by Major William K. Gifford and Captain Fred A. Treyz III; and "Airmobility, A Dynamic Dimension To River Crossing Operations" by Lieutenant Colonel Jimmy E. Griffis.

Next month the *Aviation Digest* will conclude its Infantry/Army aviation coverage with two fine articles: "An Unanswered Question—Helicopters In Urban Combat" by Captain (P) Adolf Carlson and "The Black Hawk And Huey—Partners In Total Support" by Major (P) Leon Bennett.

THE INFANTRYMAN'S HELICOPTER

Major General David E. Grange Jr.

TODAY'S INFANTRYMAN has a highly survivable and versatile helicopter in the UH-60A Black Hawk to enable him to maneuver rapidly throughout the battlefield with other elements of the combined arms team.

It was during the sixties and seventies, as a battalion commander and later as a division support command and brigade commander with the 101st Airborne Division in Vietnam, that I saw firsthand the tremendous operational capabilities of the helicopter.

In February and March of 1971, during Operation Lam Son 719 along the Laos-Vietnam border area, U.S. Army helicopters flew in the heaviest antiaircraft fire of the Vietnam War to support ground troops, attack enemy columns and evacuate casualties. This magnificent effort gave us an insight into the nature of airmobile combat the U.S. Army would face in a sophisticated battle scenario—particularly in the 1980s.

During my recent tour with the 2d Infantry Division in Korea, on field training exercises held in rugged mountainous terrain with limited road networks, the helicopter again demonstrated its ability to rapidly place ground forces with tank-killing weapons and crews in decisive battle positions anywhere along the front—day or night.

The Infantry School fully realizes the large step forward provided to the Infantry in the Black Hawk's ability to move troops, their weapons and their supplies over the battlefield. It is truly the first Army aircraft designed, developed and produced specifically with the Soldier in mind, from combat squad rifleman to forward area mechanic. This development effort stands as a shining example of the dedication and tireless work of the Army/industry team that brought the Black Hawk from concept to fielding. The "bottom line" here is that the Infantryman is the real winner in this effort.

Today, we of the Infantry School and members of the 101st Airborne Division (Air Assault) are working together to further refine tactical doctrine and to evaluate tables of organization and equipment that will ensure that Soldiers, their weapon systems and aircraft will be brought together, during battle, at the critical point of decision to accomplish the mission.

The Black Hawk gives us an increased capability to move troops throughout the forward battle area to reinforce threatened areas, to exploit tactical success, and, in general, to enhance In-

UH-60 Black Hawks landing on rough terrain (left) and holding a steady hover for rappelling troops (above)

fantry operations anywhere in the operational area. Additionally, with its impressive lifting strength, the Black Hawk can move up to 8,000 pounds of supplies and equipment, and, with its latest navigation aids, it can do both these vital combat tasks day or night, with pinpoint accuracy. In short, the Black Hawk provides the frontline commander with a helicopter "combat multiplier."

The Infantry School has been deeply honored by all of our friends and supporters in U.S. Army aviation by featuring Infantry in this month's *Aviation Digest*.

We at Ft. Benning will continue to do our best to ensure that airmobility and Infantry remain synonymous.

MG David E. Grange Jr. has commanded the U.S. Army Infantry Center, Ft. Benning, GA, since June, moving to that position from Korea where he had been commanding general of the 2nd Infantry Division for 16 months. He was an Infantry enlisted man from 1943 until 1949 when he attended OCS at Ft. Riley, KS, receiving his second lieutenant's commission in May 1950. Recent assignments for the highly decorated general include duty at Ft. Benning from July 1971 to September 1973 as director of the Ranger Department; a year at Ft. Carson, CO, as an assistant commander of the 4th Infantry Division; and a tour from June 1976 to January 1978 as commander of the U.S. Army Readiness Region III, Denver, CO.

Major General Grange

N & INFANTRY

LICOPTER IN THE 1980'S

Major Arthur L. Greaney

Test and Evaluation Division
U.S. Army Infantry School
Fort Benning, GA

ARMY AVIATION HASTE—HELICOPT

SOME 16 YEARS have passed since the United States Army first developed and tested the airmobile concept at Ft. Benning, GA. The doctrine and tactics that were developed then were refined during the ensuing 11 years on and over the battlefields of South Vietnam.

Admittedly, the helicopter in South Vietnam gave the infantryman (and his partners in the combined arms ground team) a degree of battlefield mobility not known before. But it was able to do so only because the air defense weapons systems in the hands of the opposing forces in that country were few and relatively unsophisticated.

Today, we expect a far different battlefield environment. Specifically, we expect a mid-intensity environment, and we know from the several Middle East wars of the past two decades that the air defense weapon systems of the opposing force units on a mid-intensity battlefield will be many, sophisticated and extremely lethal. Will our helicopters be able to live in such an environment? What kind of helicopter survival rate can we expect?

To try to find at least a partial answer to these questions, the Infantry School has developed a combined field test and modeling effort called HASTE (helicopter assault survivability in a threat environment), which should determine certain critical aspects of helicopter survivability.

Specifically, HASTE has two primary objectives:

- To note the effects that helicopter formations and tactics, light conditions, battlefield obscurants, artillery preparatory fires and electronic warfare have on the survivability of helicopters when they are used forward of the line of contact.
- To use the results of the field portion of the test to try to validate selected portions of the Army's CARMONETTE computer simulation model. (CARMONETTE is a relatively well-developed, sophisticated, high resolution simulation model that includes both ground and air combat situations.) If this can be done, the Army will then have a long-term, responsive, relatively inexpensive means of examining an even wider range of variables that can lead to even greater helicopter survivability rates.

HASTE will be conducted in two phases. In Phase I, a field test, lift (UH-60A Black Hawk) and attack helicopters will conduct a series of simulated insertions of an Infantry company onto an objective that is forward of the line of contact against an opposing force's array of units and weapon systems that will be similar to those we can expect to meet in a mid-intensity conflict in Europe.

The helicopters and the opposing force's weapon systems will be equipped with a variety of electronic instruments that will mea-

sure and record a wide range of functions and test conditions. They also will test the participating Soldiers' actions and reactions to various sets of stimuli. Laser equipment on the helicopters and the weapon systems will measure loss rates on a real-time basis.

The field test will be structed so that it may be duplicated in the simulation model.

Phase II will attempt to validate and use the CARMONETTE model. A series of computer simulations that duplicate the Phase I field test conditions will be conducted. The results of these simulations will then be compared with the results of the field test. If the results obtained from the simulations compare favorably with the field test results, then that portion of the simulation will be considered validated.

HASTE will be an important test, important not only to the units that will be involved in the test but to all the Army's units. If the CARMONETTE model can be validated, we will know that we can construct effective bridges between our field testing and computer simulations. We will then be able to rely more heavily on less expensive CARMONETTE simulations to delve even further into airmobile concepts, doctrine and organization, and can be confident that the results will properly reflect real-world outcomes.

N & INFANTRY

ER SURVIVABILITY

Major William K. Gifford
and
Captain Fred A. Treyz III

ARMY AVIATION AND THE ACTIVE DEFENSE

IN RECENT YEARS the active defense has become one of our key tactical tenets. To conduct it successfully, our thinking and our technology, tactics and force structures must be designed to correctly identify and counter an opposing force's actions.

What, then, will be the role of Army aviation in the active defense? In what ways can Army aviation's capabilities and potentialities be used to ensure the success of the ground battle?

Army aviation can perform an impressive variety of tactical tasks and missions, and ground commanders should have a solid appreciation for the advantages that are inherent in airmobile operations. Accordingly, the tactical use of our airmobile assets should be well conceived, should capitalize on mobility and surprise, and should include traditional as well as innovative missions, all of which should be developed with virtuosity and imagination.

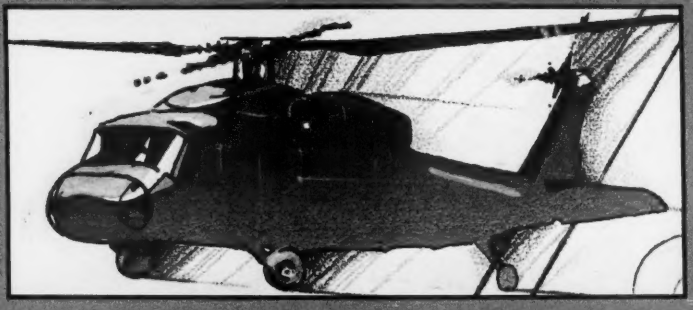
In our previous conventional wars, the forward edge of the battle area was generally a solid line behind which reserve forces had ample time in which to react and deploy. But in a future mid-intensity war, a reserve force will be a luxury that a defending force can ill afford. Every combat unit executing an active defense will be committed. The unit that will be the least committed or not actively engaged at any particular moment must be prepared to act as any reserve unit would act in the traditional sense.

For example, an airmobile unit (or another kind of infantry unit using its organic or attached aviation assets) could be moved rapidly from one position to another to blunt an opposing force's thrust. Or, Army aviation could move supporting weapons forward to assist other ground forces that might be committed to sealing off an opposing force's penetration. And we should not forget the fact that a ground commander could use attack helicopter units as counterattacking forces. We must always keep in mind that if we are to win the land battle, we must be able to commit the greatest possible amount of combat power against an opposing force's identified thrusts.

At the same time we may have rear or risk areas that will not be adequately defended by our ground forces. Army aviation support in those areas will offer a ground commander the means to screen, secure, or, in some cases, protect such areas against an opposing force's ground, airmobile or airborne units.

Army aviation in the active defense also will be of tremendous assistance to ground force commanders who might be called on to carry out one or all of the following missions:

- To seize bridges, river crossing sites or critical road junctions behind an opposing force's front lines.
- To attack an opposing force's command and control facilities, logistical bases, or reserve or assembly areas.
- To conduct antiarmor raids.
- To conduct breakout operations.
- To conduct counterattacks.
- To hand off a battle, particularly if the unit is acting as a covering force and must break contact with an opposing force



so that the battle can be taken up by the forces in the main battle area.

Army aviation can offer a ground commander valuable assistance in many other ways as well: reconnoitering and securing routes of movement; delivering messages rapidly; coordinating with other units; observing the opposing forces in depth; furnishing aerial platforms from which supporting fires and close air support can be coordinated and controlled; and, perhaps as important as any other, flying resupply and logistical support missions.

Finally, Army aviation can help the ground commander to restructure and reorganize the battlefield after the first opposing force attack so that the commander can concentrate his efforts to meet and destroy that force's second and even third assault waves. It can reposition his units quickly, it can concentrate his weapon systems where they are most needed, and it can deliver needed obstacles and other materials. The aviation units also can evacuate damaged items of equipment and return repaired items by air, actions that just might mean the difference between victory and defeat in later battles.

Army aviation is a versatile battlefield system. It will play an important role in the active defense as a key member of the combined arms team. What we must do now is to consider even better ways of employing it, and we must not restrict our thoughts to the traditional ones that are found in our tactical publications. We must be innovative enough to develop new ways of successfully employing this most valuable battlefield resource.

MAJ William K. Gifford and CPT Fred A. Treyz III are on the staff of the Command and Tactics Department, USAIS, Ft. Benning, GA. Both received their commissions as ROTC graduates, MAJ Gifford from West Virginia University in 1967 and CPT Treyz as a Distinguished Military Graduate from Arizona State University in 1970. CPT Treyz has served in armor and cavalry assignments and as a tank company commander in Europe. MAJ Gifford has been a company commander and a staff officer in Korea, Vietnam and Germany.

INFANTRY

THE ACTIVE DEFENSE

MONTHLY WRITING AWARD

ARMY AVIATIO

AIRMOBILITY, A DYNAMIC DIMENSIO

LTC Jimmy E. Griffis

THE RHINE, The Marne, The Moselle, the Meuse-Maas—these are but some of the many rivers well known to those of the military for the bloody battles fought across their currents and along their banks. Military history is somber with accounts of the precious price paid for every small foothold gained at these formidable waterways. Commanders have long sought a better way of breaching such water obstacles.

Our modern Army has vastly improved weapons and equipment compared to the forces that gallantly fought in the river battles just mentioned. Today's commanders have assets that add another dimension, a dynamic one, to river crossing operations. This dimension is the projection of combat power across the river in the form of *combat assaults by airmobile forces* to secure key terrain in the bridgehead area.

FM 90-13 contains sound doc-

trine and tells how to conduct river crossing operations. It is not the intent, here, to provide a synopsis of the FM. This discussion focuses on some of the special considerations in planning for and employing airmobile operations as part of division river crossings and explains the tactics and techniques used in such operations. Although the focus is on division operations, the tactics and techniques discussed would be applicable for any size operation.

The essence of a successful river crossing operation is the ability of the crossing force to get enough combat power across the water obstacle at the right place and with the necessary speed to gain or maintain the initiative. The early seizure of key terrain on the far bank of the river is critical to the establishment of a bridgehead. The high degree of mobility made possible with the helicopter gives the commander a force with the capability to strike across the river and to gain that crucial foothold. The airmobile force can fly over the river, avoid enemy minefields or other obstacles and help establish the required bridgehead that is large enough to accommodate the units of the crossing force and provide for protection of the crossing sites.

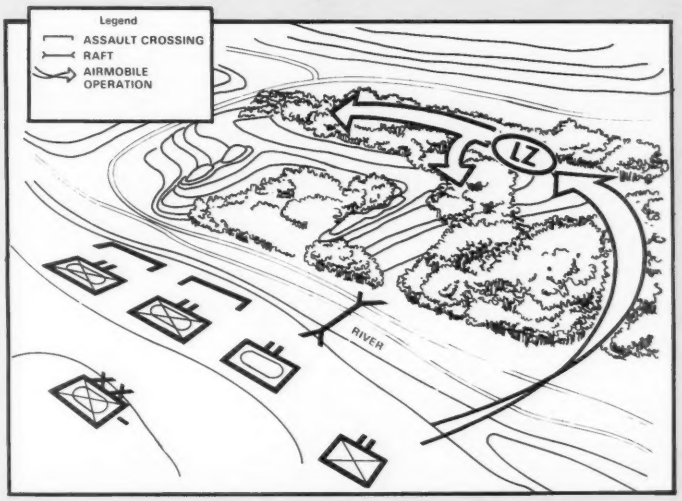
River crossing operations may be conducted as part of offensive operations (in which case, there is an assaulting force) or the crossing may be part of a retrograde operation. The crossing may either be a hasty or a deliberate one.

When planning an attack against an enemy across a river, it can be safely assumed that the enemy has made the obstacle an integral part of his defense. If the enemy has been in the area for some time or has had the opportunity to become familiar with the terrain near the river, he will know the good crossing sites. He will likely protect those sites with reinforcing obstacles, cover them by fire, and probably defend them with combat forces in good defensive positions. In this case the division will probably conduct a deliberate crossing.

This kind of defense, oriented toward the river, almost dictates that the division commander consider an air assault, striking the enemy from the rear or flank with the insertion of an airmobile force. Of course, the commander will keep in mind that if he is facing a Warsaw Pact force the enemy defends in depth and is armor heavy. Therefore, objectives and routes to them will be carefully selected. These objectives may be hills, ridgelines, key intersections, bridges, ferry or fording sites, or built-up areas.

The most likely force selected for the airmobile operation will be an Infantry battalion. When provided sufficient aviation assets to conduct the operation, an airmobile task force (AMTF)

Figure 1



N & INFANTRY

N TO RIVER CROSSING OPERATIONS

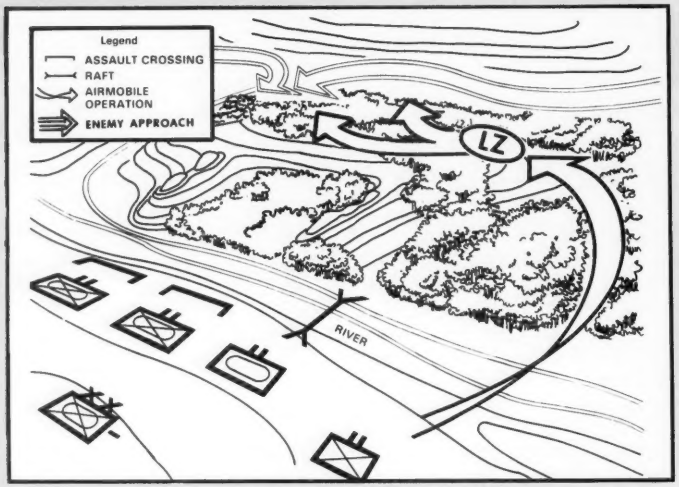


Figure 2

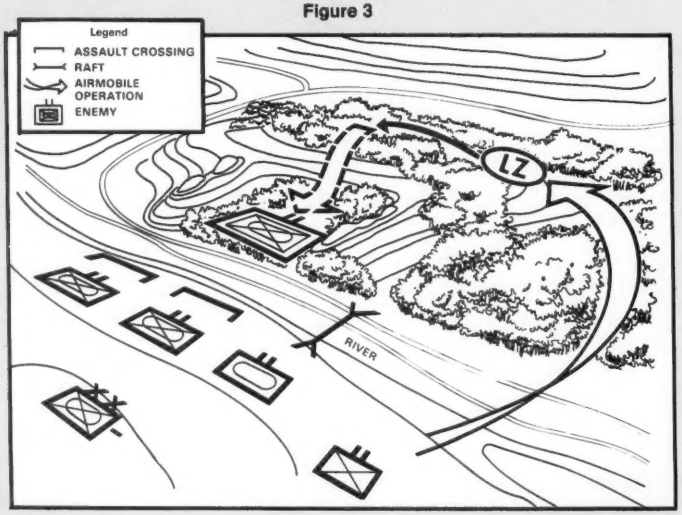
is formed. The AMTF has only limited staying power, especially against an enemy with superior ground mobility and firepower. Therefore, plans will call for an early linkup with the AMTF by ground forces attacking across the river. If the enemy strength is such that the AMTF can only hold for a few hours, then expansion of the bridgehead may have to be delayed. Mission priority for ground assaulting forces would be to linkup with the AMTF. The first elements crossing the river would immediately move to conduct the linkup.

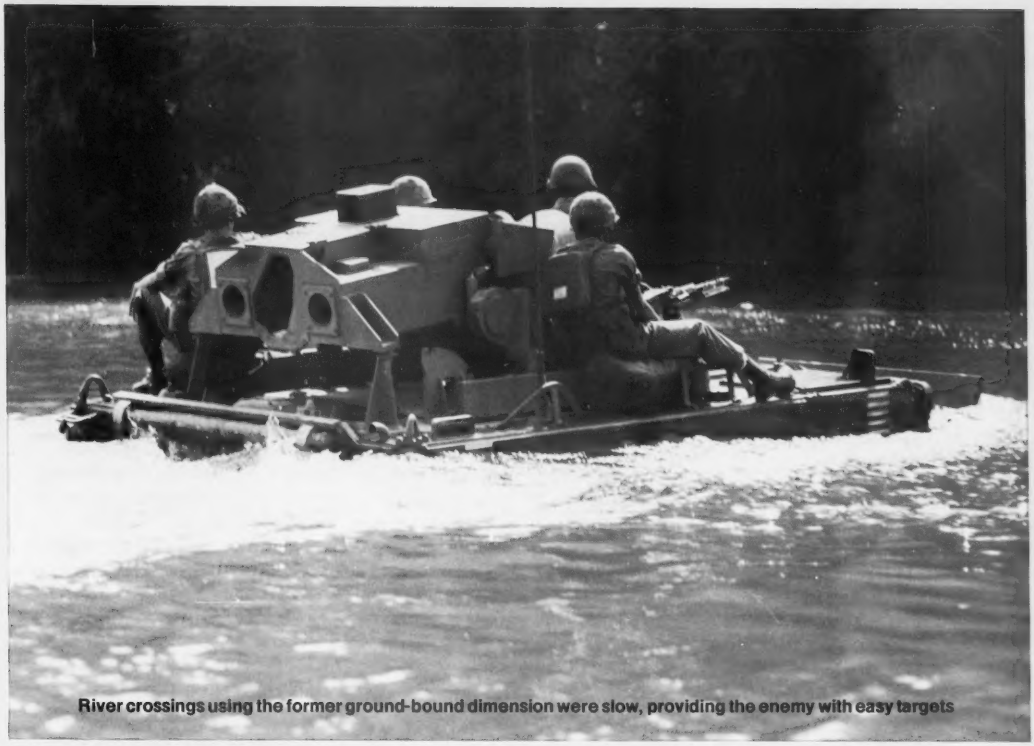
There are other conditions that must be met and things that must be provided for when employing an airmobile force. The first major condition that must be met is that the Air Force must provide local air superiority. That is always desired for any river crossing operation, but it becomes critical when employing airmobile forces. Equally as critical is the neutralization and suppression of the enemy's local air defense weapons. He will have plenty of them employed well forward. Artillery will be fired on known or suspected enemy air defense weapons locations; Air Force aircraft can knock out some of the weapons; and air cavalry and/or attack helicopter units will provide security and escort for the assault aircraft. In many cases, tanks, infantry fighting vehicles (IFV), and/or armored personnel carriers (APCs) will be able to support by fire from the near bank. The use of smoke should be considered. If smoke is used, it is employed against known or suspected enemy positions that present a threat to the AMTF during landing. The smoke is planned so it will be at or near maximum density at the time of the insertion.

There may be situations where preparatory fires would compromise the surprise of an airmobile operation. In those cases the fires are planned but held on-call. However, they must be immediately available if needed.

When defending along the river, the enemy probably won't be able to defend every inch of terrain with troops dug-in. He is sure to attempt to learn where the main crossing will take place, and is certain to plan a counterattack there. If the enemy is defending near the bank on the exit side for the assaulting force, there are basically three possible missions for the airmobile forces. (NOTE: Control measures are not shown in the three figures accompanying the missions set off below by bullets. The intent is

Figure 3





River crossings using the former ground-bound dimension were slow, providing the enemy with easy targets

just to depict the general scheme of the operation. The same terrain mat is used in each figure to reduce the amount of artwork required. The actual terrain would be quite different for each scheme.):

- The force may be inserted and dug-in on dominate terrain some distance from the exit bank on the enemy side to provide coverage of the sites from there (figure 1).
- It may be placed on terrain that will block the counterattacking force's avenue of approach into the crossing area (figure 2).
- The force may be air assaulted to the rear or flank of an enemy that is defending the crossing sites on the exit bank and attack to secure the crossing sites (figure 3).

After the enemy is defeated, accompanying engineer support forces clear the crossing site of mines and improve it as much as possible. In all cases, the airmobile force is landed as close to its objective as the situation will permit.

As with any airmobile operation, the ever-present problem of the need for lifting more assets than can be accommodated with the available lift sorties doesn't disappear in river crossing operations. It's going to be a race against time when the airmobile force is inserted and occupies terrain on the enemy side of the river. It won't be long before the enemy brings the force under heavy artillery fires and may attempt a counterattack. The AMTF will have to dig in quickly. Even though engineers are always at an absolute premium, consideration should be given to attaching some to the airmobile force. The engineers are needed to assist in preparing overhead cover and clearing fields of fire.

When the turnaround time from the assembly area to the objective will be short, several lifts can be made to move the battalion into position in a timely manner. The division will probably have enough aircraft organic to it or under its operational control to conduct the operation. The most limiting factor of how many sorties can be put in will most likely be the ability of the enemy to react. He will probably move additional forces with air defense weapons into the area to counter the airmobile operation.

There will be situations where it is best, or only possible, to go in on a one-shot basis. Then, the division might want to muster as

many aircraft as it can from corps. The number of aircraft that can be used may be limited by the terrain. The flight from the assembly area to the objective and return will most likely be made using nap-of-the-earth techniques. This precludes employing large formations of aircraft. With only a limited number of suitable flight routes, the employment of a large number of aircraft will spread the aircraft over a great distance along each route and provide the enemy time to react. It also will be difficult for attack helicopters to provide security and overwatch of the entire flight.

Depending upon the terrain and enemy, the AMTF probably will be weighted with additional tube-launched, optically-tracked, wire-guided (TOW) missiles. The additional squads might come from the river assaulting force. Plans will have to include provisions for getting the TOW squads back to their parent unit after the river crossing is complete. Troops for the AMTF may be from division units or from an infantry battalion placed under operational control of the division from corps.

When the AMTF troops are from the mechanized division, the plan will have to allow for early linkup of the dismounted elements with their vehicles after the crossing is complete. The mechanized vehicles may swim the river and conduct the linkup.

There are various aspects for the command and control of the AMTF. The Infantry battalion commander is the AMTF commander for the airmobile operation. The airmission commander, subordinate to him, is the commander of the aviation unit furnishing the most assets unless otherwise specified by division.

The AMTF commander may be under the control of the crossing force commander until the assaulting brigade reaches the crossing area release line. The AMTF is then placed under operational control of the brigade in whose zone it is employed. This will facilitate control during linkup between the AMTF and the attacking force.

During exploitation and pursuit operations, the airmobile task force is ideally suited for conducting airmobile operations deep behind the fleeing enemy and securing crossing sites for the attacking force.

Again, the AMTF will have a limited amount of time to prepare positions so engineers should accompany the force. The AMTF will probably be out of artillery range, therefore indirect fire support will have to come from organic mortars. In addition to securing some crossing sites, the AMTF may have the mission of destroying other sites to prevent their use by the enemy. Plans also call for an early linkup with the attacking force.

Retrograde operations that require a river crossing provide another good opportunity to employ the division's lift assets. Mechanized and armor units fight the delay back to the vicinity of the holding line. There, positions will have been prepared on terrain that favors infantry. The infantry, weighted heavily with medium and long-range antitank guided missiles, fights long enough to allow tanks, IFVs, APCs, and the bulk of the force's combat support and combat service support to cross the river. Withdrawal of the infantry is covered by field and air defense artillery and attack helicopter units. The infantry moves to positions that are masked from the enemy and load assault and possibly cargo helicopters for the quick movement across the river. This is, of course, a high risk operation. Because of the fast closure rate of the attacking enemy, timing of the infantry withdrawal is critical.

If there are crossing sites where the IFVs can swim the river and there is favorable terrain along the holding line they can be employed in conjunction with the dismounted infantry. Withdrawal of the IFVs would be timed so they can cross the river and prepare defensive positions before the enemy reaches the river.

Many of the subject areas that have been touched upon here deserve further discussion and debate. Techniques of conducting all types of airmobile operations need to be refined. We need to include airmobile operations as an integral part of our field training exercises as often as possible. This will provide opportunities to detect weaknesses and make adjustments. Even with the proliferation of enemy air defense weapons on the battlefield, through skillful planning and good execution we will be able to successfully conduct airmobile operations.

Airmobility does indeed add a new dimension to river crossing operations. This tremendous capability to overfly the river and enemy obstacles and rapidly build up combat power on the enemy side of the river must not be neglected.

LTC Jimmy E. Griffis, a 1964 Infantry OCS graduate, works in the Directorate of Doctrine and Literature, USAIS, Ft. Benning, GA. He holds a master's degree in education from the University of Southern California and was graduated from the Command and General Staff College in 1978.

U.S. Army

Correspondence Course Program
. . . What It's All About

2LT David R. Halverson

The author was assigned to the Directorate of Training Developments, Fort Rucker, AL, when this article was written

HAVE YOU EVER been faced with a job for which you have not been trained? Sure you have—we all have! But, what did you do about it? If you're like many of us, you floundered around doing the best you could with the limited experience you had. But, if you had known of a training program easily available and specifically designed to help you do your job better, you would have eagerly become involved—right?

The answer—or at least a good solution to a problem like this—is the Army Correspondence Course Program (ACCP). The ACCP has long been recognized as an excellent means to prepare for the skill qualification test (SQT) and the Army Training and Evaluation Program (ARTEP). However, it also is an excellent means for enlisted Soldiers or officers to learn about related or completely different job specialties. Correspondence courses are excellent tools for trainers and supervisors who are required to train other Soldiers. If that's not enough, one promotion point is awarded (to Soldiers grade E-6 and below) for the successful completion of *each* five credit hours of correspondence course material.

The United States Army Aviation Center's correspondence course program currently offers 272 individual subcourses and 18 different

Course Number	Course Title
E30	Aviation Warrant Officer Advanced Course
I51	Flight Operations Coordination Course
J01	Flight Training Preparatory Course
J11*	Army Aviation Command and Staff Officer Course
J12	Army Aviation Command and Staff Officer Course
J51	Aviation Accident Prevention Management Course
J61	Special Correspondence Course for Safety Mgmt (Basic)
R14	Air Operations Primary Technical Course 93H
R17	Air Operations Basic Technical Course 93H
R24	Air Operations Primary Technical Course 71P
R27	Air Operations Basic Technical Course 71P
R34	Air Operations Primary Technical Course 93J
R37	Air Operations Basic Technical Course 93J
S12	93H/J Air Operations NCO Advanced
S22	71P Air Operations NCO Advanced
T99	Warrant Officer Senior Course USAR
Y51*	Warrant Officer Senior Course
Y52	Warrant Officer Senior Course

* Indicates course being phased out, the course which follows the asterisk is the replacement course; i.e., course J12 replaces course J11.

Figure 1

Figure 2

DA Form 145 Submission Channels

Members of the Regular Army, National Guard or Army Reserve on active duty submit applications to their immediate commanders for forwarding to IPD.

Members of the National Guard not on active duty submit applications to their immediate commanders for forwarding through the State Adjutant General, Commanding General or Chief of Staff.

Members of the Army Reserve not on active duty submit applications to their immediate commanders for forwarding, through the headquarters having custody of their records, to IPD. Reservists who do not belong to units submit applications to the command having custody of their records for forwarding to IPD.

Members of the ROTC submit applications to their professors of military science who will forward approved applications to IPD. ROTC cadets may not enroll in career officer courses which produce diplomas but may enroll in individual subcourses.

Members of other military services submit applications through channels prescribed by the applicant's service.

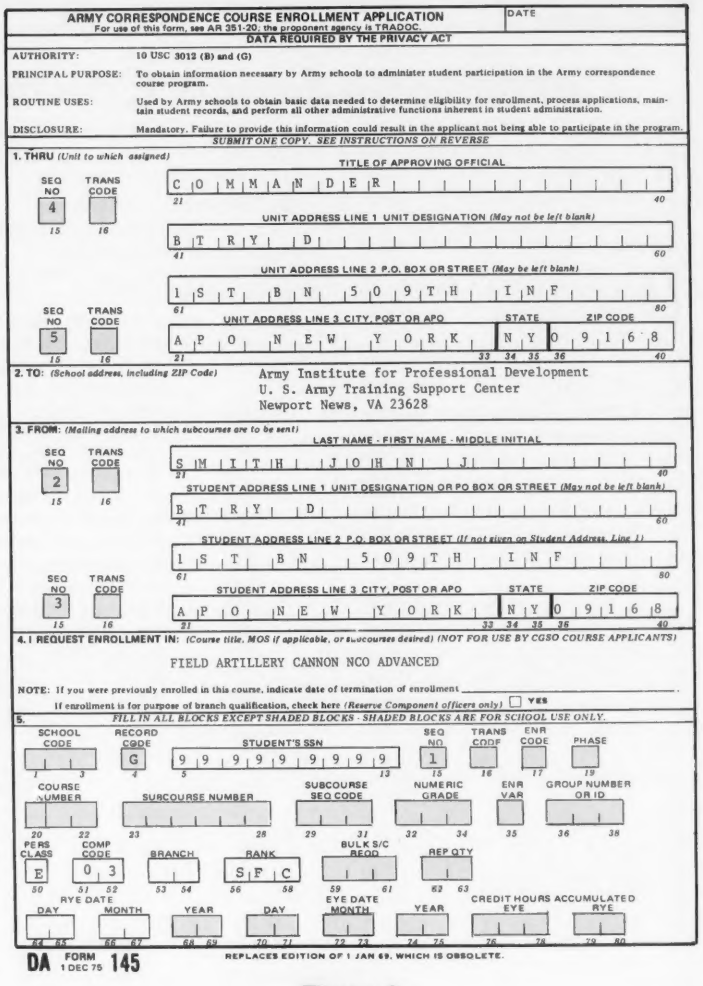
Members of other federal agencies and Department of the Army civilians submit applications through their immediate supervisor.

programs of instruction. Some subcourses support military occupational specialties (MOS) 93H, 93J and 71P for enlisted personnel. Others provide training for commissioned officers and warrant officers on command and staff, and aircraft systems. A list of the courses offered by the Aviation Center is shown at figure 1.

Most subcourses have no restrictions on branch or grade. They require no special facilities and only the supervised-on-the-job training (SOJT) format requires instructor supervision. SOJT will allow you to learn under supervision, while your unit benefits from the work you perform. The SOJT format has both an advantage and disadvantage. The advantage is the opportunity to receive "hands-on" training. The disadvantage is that it requires access to actual equipment on which to practice and to take the examination.

ACCP subcourses lend themselves easily to either individual or supervised group study. Individual study, of course, is the most flexible. It permits you, the Soldier, to enroll on your own and take the courses/subcourses that you choose. You will receive the complete package to study at your own pace and can complete the examination when you feel ready. Group study also offers distinctive advantages. It permits trainers and/or unit commanders to select, order and receive materials they deem necessary to satisfy unit training requirements. The trainer, or group leader, regulates the pace of instruction and may permit group members to study as a group or individually, depending on the nature of the course material or other requirements. The group leader also is responsible for ensuring that students work independently on examinations and that examinations are returned for grading in a timely manner.

How does one enroll in one of these programs? It's easier than you might think! To begin, you simply submit, through channels applicable



ARMY CORRESPONDENCE COURSE ENROLLMENT APPLICATION
For use of this form, see AR 351-20; the proponent agency is TRADOC.
DATE

DATA REQUIRED BY THE PRIVACY ACT

AUTHORITY: 10 USC 3012 (B) and (G)

PRINCIPAL PURPOSE: To obtain information necessary by Army schools to administer student participation in the Army correspondence course program.

ROUTINE USES: Used by Army schools to obtain basic data needed to determine eligibility for enrollment, process applications, maintain student records, and perform all other administrative functions inherent in student administration.

DISCLOSURE: Mandatory. Failure to provide this information could result in the applicant not being able to participate in the program.

SUBMIT ONE COPY. SEE INSTRUCTIONS ON REVERSE

1. THRU (Unit to which assigned)
SEQ NO 4 | TRANS CODE
TITLE OF APPROVING OFFICIAL: COMMANDER
UNIT ADDRESS LINE 1 UNIT DESIGNATION (May not be left blank): BTRY D
UNIT ADDRESS LINE 2 P.O. BOX OR STREET (May be left blank): 1STBN 509TH INF
SEQ NO 5 | TRANS CODE
UNIT ADDRESS LINE 3 CITY, POST OR APO: APO NEW YORK | STATE: NY | ZIP CODE: 09168

2. TO: (School address, including ZIP Code)
Army Institute for Professional Development
U. S. Army Training Support Center
Newport News, VA 23628

3. FROM: (Mailing address to which subcourses are to be sent)
SEQ NO 2 | TRANS CODE
LAST NAME - FIRST NAME - MIDDLE INITIAL: SMITH JOHN J
STUDENT ADDRESS LINE 1 UNIT DESIGNATION OR PO BOX OR STREET (May not be left blank): BTRY D
STUDENT ADDRESS LINE 2 P.O. BOX OR STREET (If not given on Student Address, Line 1): 1STBN 509TH INF
SEQ NO 3 | TRANS CODE
STUDENT ADDRESS LINE 3 CITY, POST OR APO: APO NEW YORK | STATE: NY | ZIP CODE: 09168

4. I REQUEST ENROLLMENT IN: (Course title, MOS if applicable, or subcourses desired) (NOT FOR USE BY CGSO COURSE APPLICANTS)
FIELD ARTILLERY CANNON NCO ADVANCED

NOTE: If you were previously enrolled in this course, indicate date of termination of enrollment _____.
If enrollment is for purpose of branch qualification, check here (Reserve Component officers only) ☐ YES

5. FILL IN ALL BLOCKS EXCEPT SHADED BLOCKS - SHADED BLOCKS ARE FOR SCHOOL USE ONLY.
SCHOOL CODE | RECORD CODE: G | STUDENT'S SSN: 999999999 | SEQ NO: 1 | TRANS CODE | ENR CODE | PHASE
COURSE NUMBER | SUBCOURSE NUMBER | SUBCOURSE SEQ CODE | NUMERIC GRADE | ENR VAR | GROUP NUMBER OR ID
PERS CLASS: E | COMP CODE: 03 | BRANCH | RANK: SFC | BULK S/C REQD | REP QTY
EYE DATE: DAY | MONTH | YEAR
EYE DATE: DAY | MONTH | YEAR
CREDIT HOURS ACCUMULATED: EYE | RYE

DA FORM 1 DEC 75 145 REPLACES EDITION OF 1 JAN 69, WHICH IS OBSOLETE.

Figure 3

to you, DA Form 145 (figure 2), Army Correspondence Course Enrollment Application to:

The Army Institute for Professional Development
U.S. Army Training Support Center
Newport News, VA 23628

Figures 3 and 4 provide examples of how DA Form 145 should be filled out.

Until 1976 each Training and Doctrine Command service school completely handled its own correspondence course program. Now, however, the 20 service schools have been consolidated under the Army Institute for Professional Development (IPD) at the U.S. Army Training Support Center, Ft. Eustis, VA. The service schools, each with their own subject matter experts, continue to write and validate their course material. Each school is still responsible for making decisions about course content, revisions and deletions and is also capable of answer-

6. ARMY SCHOOL COURSES AND CORRESPONDENCE COURSES COMPLETED

SCHOOL	TITLE OF - RESIDENT OR NONRESIDENT COURSE AND/OR INDIVIDUAL SUBCOURSES	CLASS NO OR SUBCOURSE NO.	DATE COMPLETED
FA	FA Cannon Operations/Fire Direction Assistant	Non-Resident	Apr 70

7. I REALIZE I MUST COMPLETE THIS INSTRUCTION WITHIN THE TIME LIMITS ESTABLISHED BY THE SCHOOL COMMANDANT, AND I INTEND TO MEET THE REQUIREMENTS.

13B 40 (Primary MOS Including Skill Level) | SFC (Grade) | John J. Smith (Signature of Applicant) (Sign in Ink)

The following will be completed by the commander subject to examination of applicant's personnel records. Completion of individual subcourses may be verified from completion of certificates in possession of applicant if copies are not in personnel files.

8. a. RECOMMEND APPROVAL [X] YES [ ] NO

b. UNDER THE PROVISIONS OF AR 351-20 AND DA PAMPHLET 351-20 THE APPLICANT IS ELIGIBLE FOR ENROLLMENT IN COURSE(S) REQUESTED. [X] YES [ ] NO

c. INFORMATION ENTERED ON APPLICATION IS COMPLETE, ACCURATE AND LEGIBLE.

d. I HAVE COUNSELED THE APPLICANT THAT IT IS THE STUDENT'S RESPONSIBILITY TO COMPLETE WORK FOR WHICH ENROLLED WITHIN TIME LIMITS ESTABLISHED BY THE SCHOOL COMMANDANT.

9. NAME AND GRADE OF UNIT COMMANDER OR OTHER APPROVING OFFICIAL *(Item 1)*	SIGNATURE	DATE
JOHN J. DOE CPT	John J. Doe	11 August 1977

Information pertaining to enrollment qualifications, submission of applications and courses available are contained in AR 351-20, DA Pamphlet 351-20, and individual school catalogs.

INSTRUCTIONS TO APPLICANTS

Complete by legibly block printing only in areas that are not shaded. If additional space is required, attach separate sheets. DO NOT fill in shaded areas. Areas/blocks which contain hash marks may be used to keypunch data for use in automated systems; enter only one character per hashmark, e.g., SSN 0 7 4 3 1 2 1 4 2 RANK S S G

ITEM 1. On the first line enter title of approving official; for example the word "Commander" if in military unit. Skip a block between the words; for example, 4 T H , P S Y O P C O

State and Zip Code may be left blank if unit address line 3 contains an APO number. State is a two-letter abbreviation; for example, Virginia is VA, New York is NY.

ITEM 2. Applications will be addressed to appropriate school and, after verification, forwarded through channels prescribed in para 4, DA Pam 351-20.

ITEM 3. Skip a block between words as shown in example, Item 1 above. State and ZIP may be left blank if unit address line 3 contains an APO number. State is a two-letter abbreviation; for example, Virginia is VA, New York is NY.

ITEM 4. Enter title of course. On career development courses, include correct MOS and skill level with title. If selected sub-courses are requested, enter subcourse number(s) and title(s). Enrollment in CGSO Course is made by letter request to Comdt, USACGSC, ATTN: Registrar NRI, Ft Leavenworth, KS 66027.

Item 5. Student's SSN. SSN without dashes. Foreign students leave blank.

Pers Class. Civilian = C, General Officer = G, Commissioned officer = O, Warrant officer = W, Enlisted = E, Cadets = D and Foreign students = F.

Comp Code. Enter one of the following, for example, if RA Enl, enter 03.

01 - RA/AUS GO	08 - NGUS OFF/WO	16 - USAF
02 - RA/AUS OFF/WO	09 - USAR Enl	17 - USN
03 - RA/AUS Enl	10 - NGUS Enl	18 - USCG
04 - NGUS GO	12 - NDCC/ROTC/JR	19 - USMC
05 - USAR GO	13 - FGN MIL	20 - CADET
06 - RET GO	14 - US CIV	
07 - USAR OFF/WO	15 - FGN CIV	

Branch. Officers/WO enter branch. All others leave blank.

Rank. RA warrant officers and enlisted personnel who hold a Reserve commission enrolling in career development courses must enroll in their Reserve capacity. Enter grade (rank), for example, PFC, SSG, SGM, MAJ.

RYE.Date. USAR applicants not on extended active duty will enter the anniversary date of their retirement year, for example, 2 June 0206. If unsure of this date see your company clerk.

ITEM 6. List all resident and nonresident courses and subcourses completed. If course completion certificate has not be issued, list individual subcourse(s) completed if administered in course for which application is submitted.

ITEMS 7, 8 and 9. Self-explanatory.

Figure 4

ing student inquiries dealing with technical and doctrinal aspects of a course. IPD produces, stocks and mails subcourses; enrolls students; maintains student records; grades examinations; and issues diplomas or certificates of completion to those individiuals successfully completing a course of instruction.

To keep up to date on what is offered in correspondence courses and to determine specific procedural requirements, you should refer to the various correspondence course catalogs (DA Pam 351-20-01 through DA Pam 351-20-20). Each service school produces its own catalog describing course programs for individual subcourses. Currently, DA Pam 351-20 provides administrative data for enrollment, characteristics of individual, group and SOJT enrollment, and services available to those individuals enrolled in the correspondence course program. However, this pamphlet is being eliminated and its contents will soon appear in each service school catalog. Correspondence course catalogs should be available in unit training offices and MOS libraries. Figure 5 shows a listing of service schools and catalog numbers.

As you can readily see, it can be to your advantage to enroll in a correspondence program of instruction. By the way, most correspondence materials do not have to be returned. They're nice to have around for brushing up for the SQT!

Figure 5

DA Pam	School	DA Pam	School
351-20-1	Air Defense School	351-20-12	Missile and Munitions Center and School
351-20-2	Armor School		
351-20-3	Aviation Center & School	351-20-13	Ordnance & Chemical Center and School
351-20-4	Chaplain Center & School		
351-20-5	Engineer School	351-20-14	Quartermaster School
351-20-6	Field Artillery School	351-20-15	Signal School
351-20-7	Infantry School	351-20-16	Transportation School
351-20-8	Institute of Administration	351-20-17	The Judge Advocate General's School
351-20-9	Institute of Military Assistance	351-20-18	Intelligence School
351-20-10	Intelligence Center and School	351-20-19	Academy of Health Sciences
351-20-11	Military Police School	351-20-20	Correspondence Course Catalog for Nonconsolidated Schools

NO MORE MAJOR OR MINOR ACCIDENTS

U.S. ARMY SAFETY CENTER

THAT'S THE LATEST word. The Army has made the decision to eliminate all major and minor accidents—at least from our mishap classification and reporting system. And AR 385-40 is being revised to reflect this decision.

No longer will aircraft mishaps be classified as major accidents, minor accidents, incidents, etc., as in the past. Instead, they will be identified as either Class A, B, C, D, or E mishaps; and the criteria stipulated in the revised AR 385-40 will be used to determine in which of these categories a particular mishap will be assigned.

This change is not an arbitrary one. It puts the Army in compliance with DOD Instruction 1000.19 requirements for classifying and reporting mishaps and also provides a standard for valid comparison of Army mishap experience with that of other services.

Army aircraft mishap

An Army aircraft mishap is a mishap involving Army aircraft when intent to fly exists. Intent to fly exists when an aircraft engine is started for the purpose of commencing authorized flight (scheduled flight by a rated crew). Intent to fly continues until the aircraft comes to rest (e.g., brakes set or wheel chocks in place with the engine(s), propeller(s), or rotor(s) stopped). An aircraft's engines are considered started or running the instant an attempt is made to set any one engine in motion, either by power from within or outside the aircraft. Intent to hover a helicopter under its own power from its parked position will be considered intent to fly. For amphibian aircraft landing on water, intent for flight ceases when the aircraft has made a water landing, engine(s) have been stopped, and the aircraft has either been moored or taken in tow. Helicopters designed with hulls capable of landing on water and remaining afloat are not considered amphibian aircraft.

Army aircraft mishaps are subdivided into two types:

- Flight mishap. Mishap in which there is damage to the aircraft itself. Explosives, chemical agents, or missile events that cause damage to an Army aircraft with intent to fly are categorized as flight mishaps to avoid dual reporting.
- Flight-related mishap. Mishap in which there is no damage to the aircraft itself, e.g., injury to ground crew or passengers, other property damage, and events identified as precautionary landings, forced landings, aborted takeoffs, and human factor events.

Aircraft ground mishap

An aircraft ground mishap is a mishap involving an Army aircraft in which:

- There is no intent to fly, and
- The engines are in operation.

The engines are considered in operation the instant any engine is set in motion intentionally, either by power from within or outside the aircraft.

- Injury, occupational illness, and/or property damage occurred.

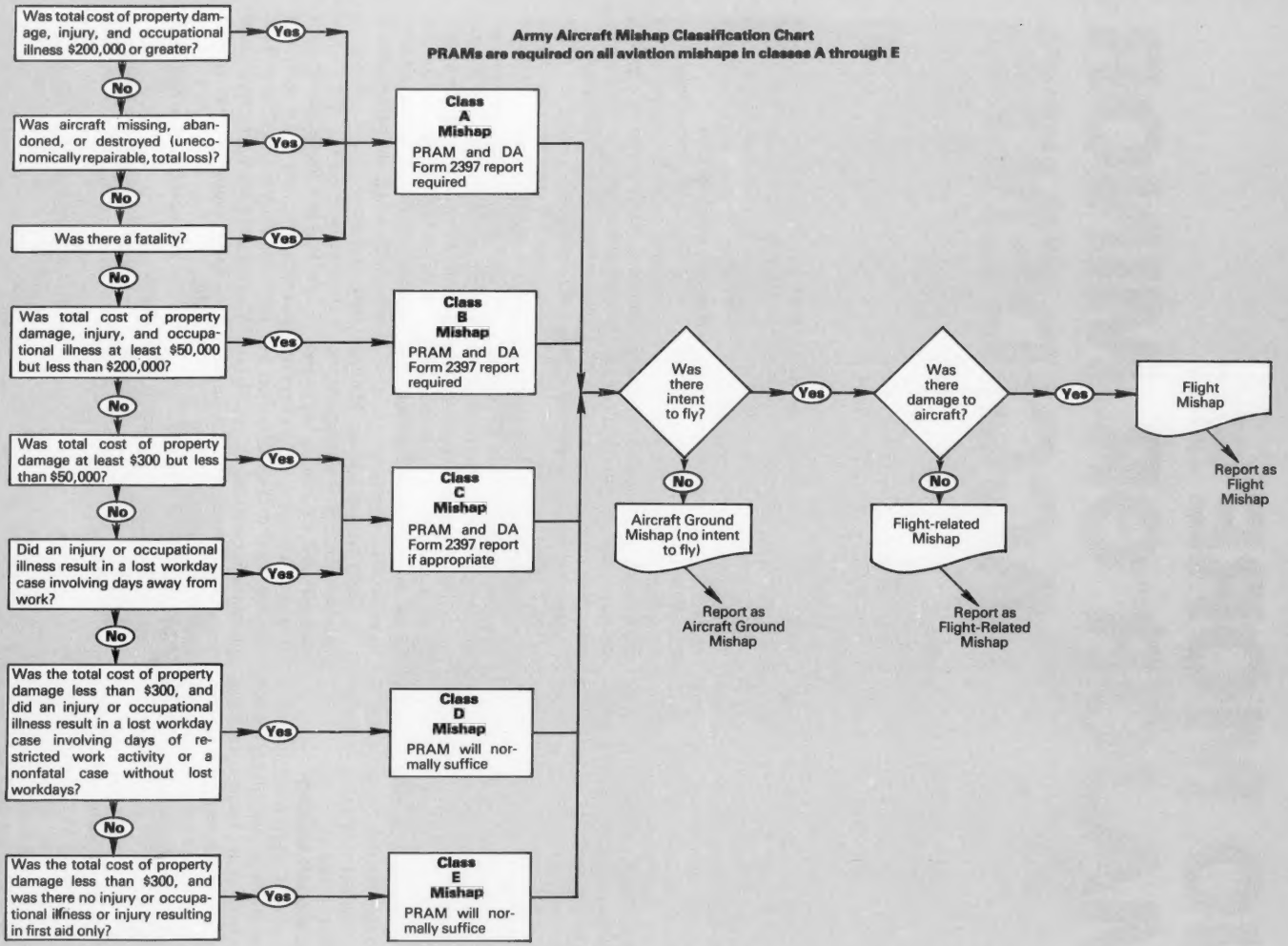
Aircraft mishap cost

- Mishap cost. Sum of the cost of injuries, fatalities, occupational illnesses, Army property damage, and non-Army property damage resulting from Army operations.
- Destroyed, missing, or abandoned aircraft cost. The cost of total loss, missing, or abandoned Army aircraft is the total replacement cost per Supply Bulletin 700-20 and includes the cost of all modifications.
- Army damage cost. Cost of damage to Army property and equipment will include the actual cost of parts and labor.
- Army parts cost.

—For destroyed parts or components, the cost of replacement per Army Master Data File or Base Master Data File which can be found in technical supply or direct support units.

—The cost to repair damaged parts.

- Direct man-hours are computed at a standard rate of $8 per man-hour and reported on DA Form 2404, Equipment Inspection and Maintenance Worksheet for Class A, B, or C Mishaps.


Army Aircraft Mishap Classification Chart
PRAMs are required on all aviation mishaps in classes A through E
Was total cost of property damage, injury, and occupational illness $200,000 or greater?
Yes
No
Was aircraft missing, abandoned, or destroyed (uneconomically repairable, total loss)?
Yes
No
Was there a fatality?
Yes
No
Was total cost of property damage, injury, and occupational illness at least $50,000 but less than $200,000?
Yes
No
Was total cost of property damage at least $300 but less than $50,000?
Yes
No
Did an injury or occupational illness result in a lost workday case involving days away from work?
Yes
No
Was the total cost of property damage less than $300, and did an injury or occupational illness result in a lost workday case involving days of restricted work activity or a nonfatal case without lost workdays?
Yes
No
Was the total cost of property damage less than $300, and was there no injury or occupational illness or injury resulting in first aid only?
Yes
Class A Mishap
PRAM and DA Form 2397 report required
Class B Mishap
PRAM and DA Form 2397 report required
Class C Mishap
PRAM and DA Form 2397 report if appropriate
Class D Mishap
PRAM will normally suffice
Class E Mishap
PRAM will normally suffice
Was there intent to fly?
Yes
No
Aircraft Ground Mishap (no intent to fly)
Report as Aircraft Ground Mishap
Was there damage to aircraft?
Yes
No
Flight-related Mishap
Report as Flight-Related Mishap
Flight Mishap
Report as Flight Mishap

DA Form 2397 series reporting requirements for new mishap classifications

Mishap Classification	Definition	Reporting Requirements				DA Form 2397 Series Requirements														
		PRAM	Telephone USASC	Board Requirements	Form 2397	-1	-2	-3	-4	-5	-6	-7& 7A	-8	-9	-10	-11	-12	-13& 13A	-14& 14A	-15	-16	-17
Class A (intent to fly)	Mishaps costing more than $200,000 in combined occupational illness, injury and property damage **or** the aircraft is missing, was abandoned or was destroyed, **or** a fatality occurs.	Yes, within 24 duty hours	Yes, Immediately	Yes, minimum of 4 members	X	X	X	X	X	X	X	A	X	A	X	A	A	A	A	A	X	X
Class B (intent to fly)	$50,000-$200,000 combined parts/labor costs, plus total costs of injury (Table 1-E, AR 385-40), and occupational illness (determined by competent medical authority) as applicable.	Yes, within 24 duty hours	Yes, Immediately	Yes, same as Class A	X	X	X	X	X	X	X	A	X	A	X	A	A	A	A	A	X	X
Class C (intent to fly)	$300-$50,000 property damage costs **or** an injury or occupational illness results in loss of one or more workdays.	Yes, within 24 duty hours	No	Yes-when more than 1 on board, president will be a commissioned officer. Warrant officers may serve on a one-man board but must be senior to individual involved in the mishap.	As Appropriate	X	X	X	A	A	X	A	A	A	X	A	A	A	A	A	A	A
Class D (intent to fly)	$0-$300 property damage costs combined with occupational illness, or injury occurring that results in restricted work activity or a nonfatal case without lost workdays.	Yes, within 24 duty hours	No	No	◄----------Series As Requested By USASC----------►																	
Class E (intent to fly)	$0-$299 property damage costs with **no** injury or occupational illness, or injury only required first aid.	Yes, within 24 duty hours	No	No	◄----------Series As Requested By USASC----------►																	
Aircraft Ground Mishap (no intent to fly)	No flight plan filed; however, the engines are in operation. Injury, illness, or property damage occurred.	Yes, within 24 duty hours	As appropriate	As appropriate for Class A,B,C,D, and E mishaps	X	X	X	X	A	A	A	A	A	A	A	A	A	A	A	A	A	A

X - Form is required at all times.

A - Form is required if the conditions of Chap. 14, AR 95-5, are present.

Note: CDR, USASC, may request forms and additional information concerning a mishap as he deems necessary.

NO MORE MAJOR OR MINOR ACCIDENTS

Since no compatibility exists between the old mishap classification system and the new one, no attempt should be made to correlate the two. Following are the criteria to be used in classifying Army aircraft mishaps:

Class A

- A mishap in which the resulting total cost of property damage, injury, and occupational illness is $200,000 or greater; or
- An Army aircraft is missing, abandoned (recovery is impossible or impractical), or destroyed (uneconomically repairable, total loss); or
- A fatality occurs as a result of Army operations.

Class B

- A mishap in which the resulting cost of property damage, injury, and occupational illness is at least $50,000 but less than $200,000.

Class C

- A mishap in which the total cost of property damage is at least $300 but less than $50,000; or
- An injury or occupational illness resulted in a lost workday case involving days away from work.

Class D

- A mishap in which the resulting cost of property damage is less than $300; and
- An injury or occupational illness resulted in a lost workday case involving days of restricted work activity or a nonfatal case without lost workdays. Nonfatal cases without lost workdays are those cases where Army military, civilian, or contract personnel, because of an injury or occupational illness:

—Were permanently transferred to another job or terminated, or

—Required medical treatment greater than first aid, or

—Lost consciousness, or

—Were diagnosed as having an occupational illness that did not result in a fatality or lost workday case. This includes newly diagnosed occupational illnesses detected on routine physical examinations, but requiring no job limitation or change, e.g., nonprogressive, noise-induced hearing loss in which the wearing of adequate ear protection devices is the only action required.

Class E

- A high-mishap-potential event in which the resulting cost of property damage is less than $300; and
- There was no injury or occupational illness, or injury resulted in first aid only. Examples include precautionary landings, forced landings, or a human factors event.

Precautionary landings, forced landings, aborted takeoffs, human factors events, cargo personnel handling and storage events, multiple aircraft events, and misappropriated aircraft events are reported as events associated with an aircraft mishap. The mishap may be class A through E where there was intent to fly.

All aviation mishaps in classes A through E are reportable by PRAM to the Safety Center. Other mishaps in classes A through C only are reportable to the Safety Center.

As of now, all information published by the Safety Center or furnished to requesting units or individuals will be in accordance with the new classification system. In this respect, the Management Information Systems Division will provide data classified under the new system for all mishaps which have occurred since the beginning of FY 1977.

Since it will be several months before the revised AR 385-40 will be ready for distribution, plans are to print and distribute copies of chapters 3 (General Safety Investigation, Reporting and Recordkeeping) and 5 (Army Aircraft Terms, Mishap Classifications, Investigation and Reporting) as soon as possible for immediate use by units in the field.

Now is the time to familiarize yourselves with the new classification system. To help you, use the classification chart on page 18.

DA Form 2397 reporting requirements

Clear and accurate reporting of aircraft mishaps is essential. Mishap reports are used to identify aviation problem areas to all echelons of command. The solutions to these problems and their implementation have a direct impact on the combat readiness of the Army. The information contained in these reports is vital to the refinement of aviation doctrine and policy. It is the basis for improvement in training of aircrews and support personnel. It provides the data needed for engineering changes to aircraft hardware and helps to establish new design criteria.

It is of utmost importance that you become familiar now with the DA Form 2397 reporting requirements for the new mishap classifications. The chart on page 19 shows when elements of DA Form 2397 are required. Pending publication of the final version of the revised AR 385-40, the Safety Center encourages reporting of aircraft mishaps in accordance with the classifications shown on this chart. Your support of this objective will be appreciated.

Point of contact at the Safety Center is Mr. A. F. Almquist, AUTOVON 558-6510/6385, commercial 205-255-6510/6385.

THE GREATEST SHOW ON EARTH

Captain Lynn Lanzoni
311th Aviation Battalion (Combat)
90th U.S. Army Reserve Command
Grand Prairie, TX

HEY, HEY, HEY! Step right up and see the big show inside! See the death-defying acts! And step right up they did—22 USAR/ARNG aircrewmembers, 22 active Army aircrewmembers and Department of Army civilians—44 students in all attended the 5th Army Life Support Workshop 10 to 14 December 1979.

The acts seen by the students are the best in the total Army aviation arena. In the troupe, Al Cargen, 5th Army aviation safety officer, was the ringmaster. He in turn presented A.B.C. Davis, roustabout of all Army aviation life support equipment. Mr. Davis keeps the "Big Top" over the ALSE program for DA and DARCOM at TSARCOM and has done so for many long years. The flight helmet trainer and tamer was SSG Gerald Johnson of U.S. Army Aviation Research Laboratory. An acrobatic act was performed by Jim Angelos, USAR-DAC and Mike Hayes USAR-DAC juggling the aircraft first aid kit, and overwater, hot and cold weather survival kits.

Scott Air Force Base, IL had a side show where all saw a full time USAF ALSE facility and a companion to life support equipment/training—search and rescue. SAR is the responsibility of the Air Force Rescue Coordination Center. Last, but not least, refreshments and parking during the workshop were provided by the 102nd ARCOM, St. Louis, MO. With this preview of acts within the "Greatest Show On Earth," let's look at the details of the death-defying acts.

In the main ring was the theme by Ringmaster Cargen and Roustabout Davis that ALSE programs save lives of aircrews and passengers here and now, and just as importantly ensure combat effectiveness on the future battlefield. A battlefield which in the beginning will be "come-as-you-are" and as dangerous as a high wire act to any Army aircrew. On this battlefield combat effectiveness could be measured by the number of passengers and aircrews returned to battle. The cost of ALSE, training and maintenance is small compared to this critical task.

However, the theme was not one of "everyone talks about, but no one does anything," because Ringmaster Cargen and Roustabout Davis provided such souvenirs as a complete ALSE technical library, a master inspection checklist for all ALSE and expert points of contact on each item of equipment. To further the workshop students' understanding of what can be done now, the Ringmaster brought in someone who has done it; Mr. John A. Chubway, 77th ARCOM ALSE/training specialist (now assigned to Roustabout Davis' office) introduced an ALSE facility to ***Digest*** readers in the April 1979 issue. Yet bettering that example came MSG Barthlomew J. Dawson, Louisiana ARNG. MSG Dawson attended the Fifth Army's First ALSE Workshop 79-1 only 90

GLOSSARY

AFRCC	**Air Force Rescue Coordination Center**
ALSE	**aviation life support equipment**
ARCOM	**U.S. Army Reserve Command**
AR	**Army Regulation**
ARNG	**Army National Guard**
ARRS	**Aerospace Rescue and Recovery Service**
AVRADCOM	**Aviation Research and Development Command**
DA	**Department of the Army**
DAC	**Department of the Army civilian**
DARCOM	**Army Materiel Development and Readiness Command**
DXing	**direct exchanging**
MSG	**master sergeant**
NCO	**noncommissioned officer**
NOE	**nap-of-the-earth**
POW	**prisoner of war**
SAR	**search and rescue**
SSG	**staff sergeant**
TSARCOM	**U.S. Army Troop Support and Aviation Materiel Readiness Command**
USAARL	**U.S. Army Aeromedical Research Laboratory**
USAF	**United States Air Force**
USAR	**United States Army Reserve**

SSG Jerry Johnson "tames" a helmet for the workshop

"Ringmaster" Al Cargen talks about command support for ALSE

days previously in St. Louis, MO.

"With the helmet program alone I went back and rebuilt several helmets. I found all my strobe light batteries and PRC-90 batteries needed replacing, which I have done. But my most important accomplishment was motivating a young warrant officer from the 5th Mechanized unit into attending this workshop and building an ALSE program there," stated MSG Dawson.

In many cases throughout the workshop the students became the performers. For example, during John Chubway's act with the PRC-90 survival radio, each student tested a radio with the AN/PRM-32 test set. A simple procedure which checks all modes of operation and one which is required on every preflight and at least every 30 days. Batteries, being important to the system, should be checked by the TS2530/UR test set or the TS2530A/UR test set. This tester also checks the strobe light battery. Testing these batteries precisely will ensure continuous power for more than an hour under extreme conditions. All of these test sets are available in the supply system and are musts for good maintenance. PRC-90 batteries need checking every 30 days and SDU-E strobe light batteries every 90 days. Finally, John talked to the students about a refrigerator, line number R62804 on TOEs which is authorized and used for battery storage. It was that kind of act that made performers out of spectators.

Similar acts were performed by Mike Hayes with the cold weather survival kit and aircraft first aid kit. Jim Angelos performed with those components unique to the hot weather survival kit. Jim pointed out how for an additional $47 a cold weather kit may be converted into a hot weather one.

During these acts each student furnished those kits applicable to their units. It became a clown act when all of the students found deficiencies in their kits as they were coached through the inspection and serviceability criteria of each item in every kit. A few of these deficiencies were: missing items, outdated medical items, defective batteries, outdated food and emergency drinking water. Basically, survival food has a shelf life of 5 years and emergency water which has no click when slapped on the bottom of the can, has lost its vacuum and should be replaced. However, in a "for real" situation, boiling this water produces potable water. Component items for each survival kit can be found in TM 55-1680-317-23&P. Aircraft first aid kit components can be found in TM 55-1500-328-25 and the shelf life is 10 years for half of the components and less than 5 years for the remainder.

SSG Gerald Johnson is the self-made flight helmet trainer and tamer. SSG Johnson knows more ways to repair and refit a helmet than Barnum & Bailey have tiger tricks. Again, this was a student participation act with all learning a step-by-step method of fitting the helmet to almost

CW2 William G. Schultz, D Troop, 1st Squadron, 9th Cavalry, serves as a demonstrator in an LPU/vest class

anyone for maximum safety and comfort. Further, the students learned some refit techniques for aircrewmembers who can't be fitted by the two-size helmet. Each subassembly of the helmet, retention, suspension harnesses and noise attenuation components, was broken down and inspected in detail, which in itself besides improving safety is a sure-fire money saving proposition over DXing helmets.

One of the needs is ensuring that each helmet has soft earcups and installing the permanent soft earcups would be a cost savings. Another is fine tuning the visor rails so that the visor works, an important backup "windshield" for the NOE aircrewmember. SSG Johnson's act is available on video tape for self-instruction from Ft. Rucker. Request number 2C-011-0752B "SPH-4 Individual Fitting and Wear."

SSG Johnson also talked about the life support equipment retrieval program which is required by AR 95-5, para 10-13 and administered by USAARL. He stressed the need for ALSE officers and NCOs in assisting the safety officer in that responsibility.

"This data is used for some research and development in life support equipment," said SSG Johnson. "Another reason for ALSE officers to be concerned with this program." Throughout the performance SSG Johnson proved himself exceptionally qualified as the chief trainer and tamer of flight helmets in the "Greatest Show On Earth."

A side show within the workshop was a field trip to Scott AFB, IL. The purpose of the trip was twofold. One, visit an operational USAF life support equipment facility and two, visit the Headquarters, Aerospace Rescue and Recovery Service and its Rescue Coordination Center. This show began at the 375th Aircrew Life Support Branch. Noncommissioned officer in charge SSG Dave Dieball gave a tour of the workbench, tech parts and storage areas with explanations and techniques for managing several hundred pieces of life support equipment.

The 375th Life Support Branch also is responsible for yearly refresher training on each piece of equipment by each aircrewmember. During a question and answer period SSG Dieball, who was formerly stationed at Pope AFB, NC where he could see Army life support programs, said, "The Army program is pitiful. Operating on a shoestring is no fun for anyone."

From the Air Force life support facility the students saw another head of the two-headed tiger—that of search, rescue and recovery. The Aerospace Rescue and Recovery Service is a technical service under the Military Airlift Command and is the Air Force's largest single user of helicopters. ARRS also operates the Air Force Rescue Coordination Center from Scott AFB. AFRCC is the single federal agency responsible for coordinating SAR activities in the continental United States. The AFRCC uses all civilian and military resources available for a SAR mission. ARRS experience has identified ALSE problems which include deficiencies of avionics, personal survival equipment and operational equipment. These experiences should serve as part of a springboard for development of the Army's aviation life support program and the side show to Scott AFB was certainly an excellent springboard for the students at the workshop.

Throughout the long work week there was more hands-on-training with a panel discussion of specific problems from the worldwide gathering. A formal discussion of command policies and life support was included; reason—give the ALSE officer, NCO or technician a background for talking to a commander using the regulations. AR 95-1, AR 95-5, a 5th Army letter—subject: "Command Support of Aviation Life Support Equipment," are some of the means which bring the program to center ring in that Army area. As the last day of the workshop came around a discussion of future and current research and development projects was presented by Major James Cristie, AVRADCOM.

A number of video recordings of ex-POWs were played and there was keen interest by all attendees—several were heard to say, "Three years in captivity for the lack of a survival radio."

Did the workshop live up to a billing as the "Greatest Show On Earth"? Without a doubt, each student came away with the knowledge of how they could perform numerous acts such as keeping a survival radio working, providing current potent first aid supplies and finally, getting the most protection from a flight helmet and Nomex uniform.

And what is the real purpose for the ALSE officer, NCO or technician? So that all aircrewmembers and passengers can perform those death-defying acts and never have to hear an ex-POW or someone's ghost say, "if only I had . . . and it had worked."

MISSION OF MERCY

Major Burl L. Eastepp Jr.
U.S. Army Reserve
Shreveport, LA

Last November the 36th flew its 1,000th MAST mission

THE AIR WAS STILL. The night sounds were loud and disturbing. In the distance the sounds of powerful jet aircraft landing could be heard. Everyone waiting felt an air of tenseness and emergency. The ambulance driver continued to glance nervously at his watch while the other medical personnel constantly and methodically checked their instruments and equipment. Everyone anxiously scanned the dark, cloudy skies and strained to hear the sounds of the helicopter rotors or see the light from the exhaust. The clouds parted briefly and a full moon lighted the entire area. The parked aircraft resembled sleeping giants from another planet waiting to be called upon to perform their mission.

Suddenly, the night seemed to explode with that unmistakable sound of rotors chewing large chunks of night air to maintain altitude and speed, as the helicopter approached with its mission of mercy. Without a signal, the crew went into action in preparation for the arrival of the aircraft with the precious cargo whose life was hanging in a most delicate balance.

This scenario did not happen in Vietnam or any other area of military combat. This was an actual case of the Military Assistance to Safety and Traffic (MAST) program in northwest Louisiana, flying a mission for a prematurely born neonate that had to be transferred to an intensive care unit for high risk newborns. The infant was born in a rural area of northwest Louisiana and

immediate transfer was necessary in order for the child to be placed in the hands of skilled medical personnel located in a medical center equipped with the latest life support equipment. Ground transportation would have taken too long as the distance was so great.

The MAST unit, 36th Medical Detachment, is located at Ft. Polk, LA, and is responsible for an area which includes a 100-nautical mile radius of the post. This covers a large part of northwest, central and south Louisiana, as well as east Texas. The MAST program was implemented in many areas of the United States in the mid-1970s as a result of legislation passed by the Congress on 16 November 1973. The resources of the 36th Medical Detachment at Ft. Polk were implemented in February 1976 as a result of a "Memorandum of Agreement" between the Sabine MAST Coordinating Committee and the United States Army, Ft. Polk, LA. There have been many similar cooperative agreements worked out in other areas of the U.S. and, at the present time, there are about 24 active MAST facilities performing these tremendously responsible acts of mercy. In an interview with Mr. Donald R. Shedd, MAST civilian coordinator, he advised that "during the period of 1973 to July 1977, 10,471 MAST flights transporting 10,639 patients were flown, consisting of 23,938.9 hours of flying time."

Transportation of high risk newborns is only a part of the service provided by MAST. Other types of trauma, such as neurological injuries which require the very latest in medical care and treatment located in the medical centers of the area served, are transported as soon as the patient is stabilized. During the period of February 1976 through January 1979, 415 missions were flown by the 36th Medical Detachment. Included in these transfers were 90 premature infants who probably would not have lived without the immediate attention of the medical personnel (neonatologist) and the medical facilities, such as the intensive care unit for high risk newborns.

In Louisiana 43 parishes are classified as rural, meaning more than 50 percent of a parish population resides in rural areas. One of the main objectives of emergency medical transportation is to minimize personal injury and loss of life by providing timely emergency medical care to the injured and critically ill at the scene of an emergency incident. As a result of the studies in 1973, it became apparent that the ground transportation would have to be supplemented by air transportation to cover these rural areas of sparse population, many of which were not protected by any ambulance service whatsoever. This particular problem existed throughout the United States and the solution to these kinds of problems was sought in the legislation which established the MAST program P.L. 93-155.

In an interview with Major Glenn W. Flint, commander of the 36th Medical Detachment, he pointed out that, "The realistic training, as a result of performing these MAST missions, is very valuable in terms of training for the military component and that it is good utilization of resources." He added, "The basic philosophy of MAST cannot take away from the primary military mission; however, training, while providing a service to the civilian community, is very important."

Dr. Juan J. Gershanik, staff neonatologist at the Louisiana State University Medical Center in Shreveport, LA, has treated many of the infants brought in by the MAST helicopters, and he is very quick to point out that not only are many lives being saved but the infants also are spared many kinds of crippling conditions, such as brain damage caused by respiratory difficulties as a result of premature birth. Time is of the essence when respiration, body temperature and heart beat may become irregular or fluctuate within very narrow margins of safe limits.

According to Mr. Shedd, the accident rate for Louisiana has continued to increase. The rate for all accidents, including industrial, home and highway, was 61.3/100,000 population in 1976, 63.9/100,000 population in 1977 and 64/100,000 population in 1978. This means that the demands for emergency care and transportation will continue to be high and require the facilities of MAST. Indications are that MAST will continue to play a most important role in the emergency medical services program throughout most of Louisiana and east Texas.

Here at last!

FATCITY

ALL THOSE YEARS of sweating helicopters and field maneuvers are over. You've finished the Fixed Wing Multiengine Qualification Course and completed unit mission qualification. Now you're ready to go! Nothing but engines, instruments, radios and plenty of runway. No sweat. *Right? Wrong!* Attitudes like this must be creeping into the fixed wing fleet because our accident rates are soaring while our rotary wing counterparts are reducing theirs.

Perhaps we've got an attitude problem. I did when I began flying fixed wing. I remember thinking how relaxing it was not having to worry about wire strikes, forced landings and tail rotor failures. I would happily divert a solo cross country to explore the local mountains—secure with the additional engine and radio equipment.

One night our T-42 Cochise was overdue. Its flight route was straight over those familiar mountains. At dawn, the wreckage was found less than 10 feet from the rim of a saddle in a box canyon. The accident board thought the plane had lost power on one engine, been unable to maneuver out of the canyon and crashed trying to climb out of the trap. It was then I decided to learn more about fixed wing.

There are things that go wrong with aircraft that are usually quite different from rotary wing emergencies but require just as much prethought. Let's break them down into major areas:

- Preflight.
- Takeoff.
- En route.
- Landing.
- Postflight.

Preflight:

Even an OV-1 Mohawk is a snap to *preflight* compared to a UH-1 Huey. But if you get careless you might forget to secure the fuel cap and be siphoning instead of burning gas.

When you check your gears, do you study what the various components look like and how they operate? Someday you might be presented with an unsafe gear indication and a thorough knowledge of gear mechanics will add to the value of your cockpit mirror check.

Runup is part of your preflight. If you're going IFR, who checks all your deice boots for proper inflation? Do you know where to expect ice? What will you do if you must divert to that alternate?

GLOSSARY

GCA	ground controlled approach
IFR	instrument flight rules
ILS	instrument landing system
NAVAID	navigational aid
PIREPS	pilot reports
rpm	revolutions per minute
SOP	standing operating procedures
Vmc	minimum single engine control speed

Takeoff:

Fixed wing *takeoffs* demand carefully thought-out procedures that may be alien to a rotary wing pilot. What are your rotation and best rate of climb speeds (single as well as all engines operating)? How much room will you need to abort successfully and is it available when weight, wind and temperature are considered?

Performance Planning Cards are available for your aircraft and should be filled out for every flight. Knowing your aircraft's capabilities might help you a lot more than guessing about them.

Once you've determined your *takeoff figures,* consider what they could mean. An accelerate-stop distance of 5,000 feet on a 5,000-foot runway means if you accelerate beyond the recommended lift-off speed for that little extra cushion, you've already run out of runway should you have to abort at that point.

Is Full Power Reverse Necessary?

Recently a warrant officer came by the *Aviation Digest* with a copy of this article. It had been found in the personal effects of one of his close friends who had been killed in an aircraft accident. The draft, handwritten, was rough—but it carried an important safety and professionalism message that we in Army aviation sometimes consider routine. The author was developing the article that appears below to emphasize that there is nothing routine about aviation safety or professionalism. I am sure that he would want you to get that message from his article. Editor.

What If One Prop Doesn't Reverse?

Consider your *after takeoff techniques.* Do you pride yourself on cleaning up the aircraft? Raising the gear will help you get airspeed, but what does raising flaps do to your controllability?

Vmc charts are based on gear down, flaps at takeoff position. With the OV-1, raising gear and flaps at lift-off speed puts you just below clean configuration Vmc. Have you read through the dash 10 procedures on Vmc? Retarding power just 10 percent might allow you to regain control long enough to fly out of Vmc. If you've lost control, reducing power will help get you back wing level.

En route:

En route flying in your fixed wing aircraft means you should be planning for en route altitudes and fixes long before you get to them. All those radios are nothing but dead weight if they aren't tuned for maximum response and positive position fixing. Always keep in mind that radar might fail and radios have been known to dribble down to useless static.

If these reassuring communications aren't there, what altitudes will you fly and how are your estimates compared to what you're flying? Sent out any PIREPS lately? A light Cessna may be behind you that would really have to struggle with the light load of ice you're carrying.

Landing:

Arrival comes quickly in a fixed wing. I've seen aviators fly right through the localizer course and then wonder what they did wrong. Preplan actions to slow your approach. Drag slows you down, so consider using speed brakes, gear, flaps and prop rpm to transition from en route to approach speed.

Remember the checklist, forgetting it can lead to a bumpy landing. Don't get mechanical about that prelanding check, the controller may need a higher speed for traffic. You might be in some heavy ice, and dropping the gear too far out will gather extra ice like a solo party.

Do you practice all available approaches or is a GCA your sure answer? Even a GCA can be backed up with an ILS, and area NAVAIDs can keep you oriented for safe sector altitude purposes. If you've got only one engine, what does your SOP mean by, "Gear down, when landing assured."

Getting down to *minimums* is no time to be wondering what you expect to see. Study your approach plate airfield diagram, and you'll be a lot less likely to line up on a well-lit taxiway. How much runway is available to you, and what's the runway braking action going to do to your choice of brakes and reverse thrust?

Reverse thrust can bring spectacular landing results to impress your rotary wing friends. But what if one prop doesn't reverse? Is full power reverse necessary? One method worth considering is to briskly pull power levers into full reverse and then up to reverse idle or any position of reverse as desired. The slower acceleration times for an idling turbine might give you time to diagnose and correct what could be a spectacular accident.

Postflight:

After escaping so many potential hazards don't just roll into the chocks and head for the latrine or coffee pot. Even a brief postflight might reveal a new engine oil leak, hydraulic fluid seeping in the gear area or a worn-out brake shoe. All of these would probably be detected later, but why not help unit availability with immediate inspection while the problem is easy to trace and avoid? That way there'll be more aircraft available for you to keep on logging that safe fixed wing time.

So you want to buy a new armored infantry combat vehicle ?

Captain E. Gary Campbell
Threat Branch
Directorate of Combat Developments
Fort Rucker, AL

This article is a light-hearted attempt to make aviators aware of the serious threat posed by the BMP. The BMP's 73 mm gun and AT-3 SAGGER ATGM are very effective antiarmor and infantry weapons, but open source literature has indicated that the Soviets also are training to use these weapons in an antihelicopter role. Aviators should be aware, especially pilots flying close to the FEBA, that the BMP is going to be employed with the tanks. Presently, divisions in Eastern Europe have received the BMP as a replacement for the BTR-60PB in one motorized rifle regiment per division.

Second, the Soviets are so impressed with the BMP that there are about five variants. Each variant is associated with a certain type unit, organization and formation. Therefore, it is imperative that Army aviators have knowledge of these BMP variants in order to know what type of force they are reconning, fighting or destroying. Depending on the response we receive from Honest Nik's sale's pitch, we will attempt to provide more information concerning tho role of the infantry combat vehicle in the Soviet's total battle plan.

PAZHALOOSTA vayditye .... Pazhaloosta vayditye .... Kak vih pazhivayetye? Step into our nice warm showroom. May I get you a cup of hot borshch? I am Nikolay Volkovn, sales manager, B&BMP Car Lot and your name is . . . ? Ah! Ah! Well, Sam, that is a pretty little wife you have. Pardon me? Oh, nyet! Very nice visiting your uncle in the Motherland, good—good!

"Let's get down to business. What kind of vehicle can I show you today? Oh, oh . . . OK, so you want to see a new infantry combat vehicle? Well, I certainly think we can fix you up. Will you be financing the entire amount or do you have a trade-in? Oh, yes, that's your automobile. Oh, OK, let me check the Blue Book listing on that—uh . . . oh . . . well we can talk about the value of that later.

"Now, let me ask you. What are you looking for in an ICV? We like to call them that for short . . . you know like MG, BMW. Very well, let me write this down . . . dependable, reliable, maintainability, durable, compact, but spacious. Oh, you want it armed? No problem, but that is considered an option and will cost extra. Yes sir, I know affordability—you want good looks matching good economics. Very good, Sam; now let me show you our top of the line armored infantry combat vehicle, but first let's look at these new colored brochures on the Bronevaya Maschina Plavayutschiy model or BMP for short.

"Look here, Sam, look at this impressive engine compartment to the right of the driver; it houses the quick and responsive turbocharged, 400 hp, V-6, four cycle, diesel engine, developed especially for the BMP. Also, notice the cooling system, air filter, compressor, water pump, and the planetary gearing in the six gear, dry clutch, hydromechanical transmission. Sam, look at this cutaway view of the combat compartment and rotatable turret. In these areas, we have the weapon systems, a durable 73 mm gun with an automatic loader to reduce the number of personnel or to give your family more room. As you know, the 73 mm is a very lethal weapon, especially with a rate of fire of 6 to 8 rounds per minute and a range of 1,300 meters. I don't know what you plan to use this weapon for, but I have been told that it is very effective against ground targets and helicopters.

"And don't forget the AT-3 SAGGER antitank guided missile (ATGM), Sam. It too is standard equipment. We may even be able to get you an improved missile. I heard a rumor from the plant that they are putting more sophisticated missiles on the newer BMPs. But the AT-3 may be all you need because it has an effective range of 500 to 3,000 meters. Oh, I almost forget. The 7.62 mm coaxial machinegun is found on either the BMP or the model found with our airborne troops, the BMD. Also in the spacious combat compartment is the sighting system, reserve ammunition (about 40 rounds of 73 mm, 4 SAGGERS and 2,000 rounds of 7.62) observation devices and ventilation systems.

"Sam, you and the little grazhdanka come on over here and let's look at this exciting and sporty BMP we have in the showroom. Let's start at the rear and work around. First, look at these two large rear doors which are primarily used by our motorized rifle troops for dismounting and also are configured as fuel tanks. Come on in and have a seat

Two views of the Soviet Amphibious Armored Vehicle

on these plush comfortable benches. This area is called the crew compartment and as you can see, four soldiers or kids sit on each side divided longitudinally by the main fuel tanks and the battery boxes.

"Oh! . . . those . . . . Those are eight heated periscopes our saldati use for observing the battlefield and those are the mounts where they stow their two machineguns and six assault rifles. They also have their individual firing ports to allow them to fire their weapons while moving. Just to give you an idea of the room available, our antitank gunner fires his RPG-7 from one of the four hatches in the hull, and the saldat with the SA-7 Grail fires from the right rear. This position gives him a lot more stability especially when firing at helicopters. Also in the crew compartment, as standard equipment, is the bilge pump, filtered air distributor, air scoop and power gas exhaust fans.

"If you will help your little zhena, we will go up top. Look here at the turret; the gunner has his own entrance through this hatch. And, if you prize the delights of driving, you're looking at the right ICV. Because all of our operating elements are easy to activate and so configured, they preclude premature driver fatigue. The driver's seat, which will be your place, Sam, is on the left side in the forward part of the hull next to the engine partition. OK, little grazhdanka, as the commander, har . . har . . . (a little joke) . . . you will be sitting behind Sam. Both driver and commander have their own infrared, night and day observation devices. Look at that instrument panel, positioned right in front of you. All the necessary controls and measuring instruments are within easy reach. Also, the gyrocompass, intercom, steering gear and pressurized air system are easily accessible. The commander's intercom and radio are right here in front. Let's step down and look at the sculptured, flowing fender line of the BMP.

"Folks, take a look at these road hugging tracks that propel the BMP on land or on the water! Due to the light construction of the links, which are connected by rubber coated bands, your tracks will last a long time and help in attaining high driving speeds.

"The BMPs have low specific ground pressure; therefore, they are very fast on rugged terrain and can traverse less bearable, slippery, sandy and snowy stretches. Hey Sam, how many times has that automobile of yours ever gotten stuck? Well, you won't have that problem with this vehicle.

"Come on into my office and let me explain the elaborate crew protection systems. Would you like another cup of borshch? Sam, do you like to go to the beach? Well, when you get ready to take this streamlined jewel to the beach or use it to cross a river, like the Rhine, she will hit the water with only limited preparation. And during swimming, the engine is protected against water penetration by a disconnectable intake and by automatic valves. If water should enter the vehicle, it is pumped out by a special system.

"Another piece of excellent equipment, which is also standard, is a nuclear protection system. If, for some reason, you happen to be driving around and all of a sudden a nuclear war breaks out, you will be protected. An automatic device stops the engine instantly and closes the radiator shutters. The protective covers of the engine intake close; so do the feedlines to the fans in the turret and crew compartments. The fans, main compressor and the air intake system that filters the air, switch on automatically. As soon as the pressure wave has passed, the driver starts the compressor which feeds filtered air under pressure to the entire vehicle.

"This sytem is very effective in chemically polluted environments similar to your New York or Los Angeles. When these substances are detected, the intake covers of the fans close. Their drive stops and the filter ventilation begins to function automatically.

"All of these are nice to have, but what really protects you, Sam, is the armor. The BMP has 19 mm or armor in the hull and 23 mm in the turret which will protect it against the impact of weapons found on most foreign armored infantry vehicles. Hey, folks, you know what I really like about the BMP? It is capable of laying its own smoke

screen. That's right . . . . Can you imagine being able to hide in your own self-generated smoke screen? I would enjoy playing with it.

"Well, that's it . . . . The bold and sleek BMP, our top of the line infantry combat vehicle. Besides what I just showed you, it can reach a road speed of 70 km/hr and has a cruising range of 500 km, thanks to the high performance power plant and the advantageous combination of transmission gearing, track and drive suspension. In fact, the sprocket-to-gross power ratio is probably the best in the world. But I know you are not interested in that—what you want is a good ICV for a small amount of money. Remember, this is a combat proven, impressive BMP—ready to go now.

"Well, what do you think, Sam? Can I tell the service department to get this beauty ready for you to drive away?

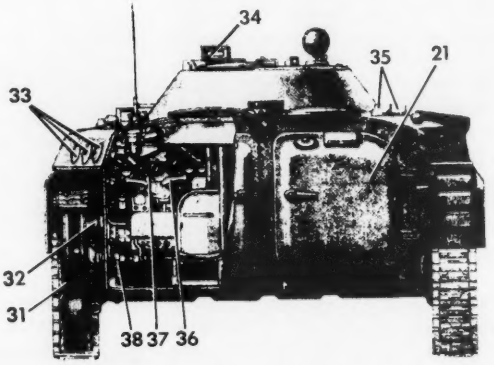
"Oh . . . OK . . . Sam, if that's what you want to do. Yes, I realize you Americans like to take your time, shop around and then take your time making your decision. However, that old automobile isn't going to last much longer.

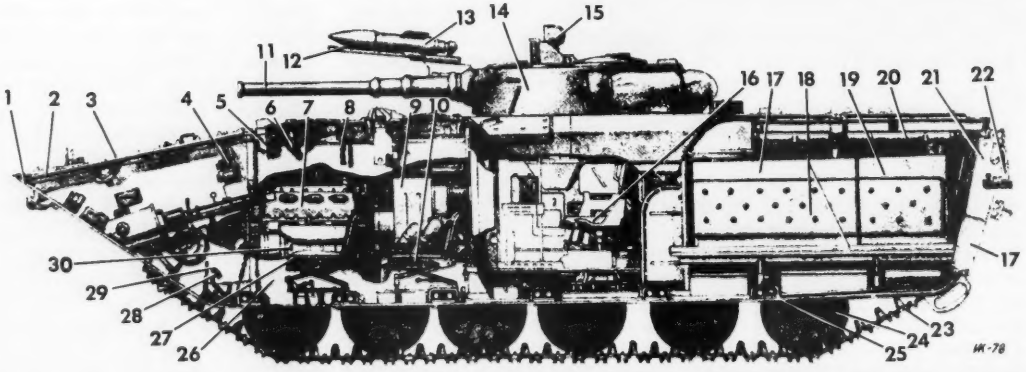
"Sam, keep in mind that all of the capabilities that you saw today are available; therefore, whatever vehicle you buy, it can have all the necessary equipment and systems.

"Folks, have a good day and come back to see us. I know I will be able to make you a good deal. If you need any other information, just call me at Byela Rusiya 549."

Armored Infantry Combat Vehicle BMP

1. Hull
2. Stabilizing wave breaker
3. Glacis plate
4. Instrument panel
5. Driver's periscope
6. Lever for driver's hatch
7. Engine
8. Lever for protective covers
9. Air filter
10. Commander's seat
11. Gun
12. Missile launcher
13. Missile
14. Turret
15. Searchlight
16. Gunner's seat
17. Fuel tank
18. Crew bench
19. Battery
20. Position of antiaircraft missile gunner
21. Rear door
22. Rear firing port
23. Track
24. Road wheel
25. Torsion bar
26. Engine partition
27. Driver's seat
28. Clutch pedal
29. Gas pedal
30. Generator
31. Idler wheel
32. Support roller
33. Firing ports
34. Sight
35. Crew periscopes
36. Steering lever
37. Gear shift
38. Track-connecting fixture





UNITED STATES ARMY
AVIATION DIGEST

Directorate of Evaluation/Standardization

REPORT TO THE FIELD

Army aircraft mishap prevention data

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Stacom

FEEDBACK

THE COMMANDING GENERAL of the U.S. Army Aviation Center at Ft. Rucker, AL is tasked to execute the Army Flight Standardization Program for the Department of the Army (DA) staff. DES, as executive agent for the Office of the Deputy Chief of Staff for Operations and Plans, DA, has established a direct communications link with the field regarding flight standardization matters. The purpose of this link is to provide information that generally precedes the formal staffing and distribution of DA official flight standardization policy. The communications link also serves as a forum for responses to selected questions from units in the field and serves to disseminate areas of recurring deficiencies noted by DES during the execution of the Army Flight Standardization Evaluation Program.

The communications link is accomplished through a 24-hour telephone answering service called the Ft. Rucker Hot Line (see March 1980 ***Digest***) and frequent articles in the U.S. Army Safety Center publication FLIGHTFAX under the Standardization Communications or STACOM byline; and monthly articles in this section of the ***Aviation Digest***. This ***Digest*** article will zero in on the STACOMs published at least once a month since 18 February 1976.

Because STACOM is a part of the "parent" publication FLIGHTFAX, a considerable amount of liaison between DES and the Army Safety Center is involved. Every effort is made to ensure that the views and positions of the two activities complement each other. This working arrangement, encompassing flight standardization and safety, is a highly recommended relationship between safety and flight standardization personnel at all levels.

STACOM subject matter is determined by a variety of factors, such as recurring problems (discovered during flight standardization evaluation and assistance visits); aircraft accident trends; answers to inquiries; etc. A regular feature of STACOM is the Quarterly Operator's Manual and Checklist Update. STACOM continues to "blow the whistle" on what it considers areas of concern to the flight standardization and aviation safety programs. The role of instructor pilots (IPs), their philosophical outlooks, their methods and suggestions for improving their performance have been recurring subjects. The IP's contribution to the aircraft accident record is another recurring subject. "Position Reports, Questions and Answers" is the STACOM section that handles most inquiries.

Occasionally, a question is received that is given a broader range of discussion, such as the one on "UH-1 Simulated Emergencies" in STACOM 49, 24 October 1979 (see page 32, ***Aviation Digest***, January 1980). The question posed was whether an IP was permitted to pull circuit breakers, turn off systems or otherwise interfere with normal operation of the aircraft to simulate flight emergencies. The crux of the STACOM answer was that although the IP had the authority to perform all of the action as cited in the foregoing question, prudence dictated judicious use of this authority. This question and the STACOM answer have generated considerable discussion. While there were a few dissenters to the STACOM position, the vast majority of aviators were in agreement.

The success of STACOM continues to be dependent upon feedback from aviators, instructor pilots and their supervisors. DES solicits this feedback and encourages direct communication for the resolution of aviation related problems or questions. Response to STACOM has been excellent. It continues to be an effective tool for the Army Aviation Flight Standardization Program.

Aviation Personnel Update

Major William B. Leonard III

Chief, Aviation Plans/Programs Branch
Officer Personnel Management Directorate
U.S. Army Military Personnel Center

ASTRONAUT Candidate Nominations. In the February 1980 "Reporting Final," the *Aviation Digest* listed 20 applicants nominated for further consideration into the NASA Astronaut Candidate Program. The Army Astronaut Candidate Selection Board reviewed the professional and academic qualifications of 143 enlisted, warrant and commissioned applicants of the active Army, National Guard and Army Reserve. The following is an overall profile of those selected:

Applicants for Astronaut Pilot Candidate only—0
Applicants for Astronaut Mission Specialist Candidate only—16
Applicants for either Pilot or Mission Specialist—4

	MALE	FEMALE
Selected:	19	1
Ages:	25-42	25
Major disciplines:		
Biochemistry		1
Medical	5	
Engineering	10	
Physics	3	
Chemistry	1	
Doctorates (including medical):	11	1
Nominees with multiple master's degrees or masters unrelated to doctorate:	9	
Undergraduate colleges/universities:		
USMA	11	
Civilian institutions	9	

Flight Experience:
Currently rated Army aviators: 8
Formerly rated Army aviators (currently medical doctors): 3
Combat pilot experience: 10
(230 to 2,246 hours)
Flight Hours: 0 to 4,171
Engineering Test Pilots:
5 graduates of Naval Test Pilot School, Patuxent River NAS, MD
1 board-selected to attend
Hobbies: Skiing, hiking, swimming, racquetball, handball, raising and training dogs and horses, and pistol competition.

NASA officials anticipate announcing selecting of 18 to 20 candidates from among more than 3,000 civilian and military applicants in mid-1980.

Application Windows For Flight Training (Commissioned Officers). Over the next 2 years, the number of commissioned flight training quotas filled by officers brought on active duty in Specialties 15 and 71 will increase to about 85 percent. However, during fiscal year (FY) 1981, 195 quotas will be filled by commissioned officers who are already on active duty.

Officers who desire to attend flight training during FY 1981 must forward completed applications to Military Personnel Center (MILPERCEN) not later than:

- 1 July 1980 to be considered for attendance during 1st quarter FY 1981 (October to December 1980).
- 1 October 1980 to be considered for attendance during 2d quarter FY 1981 (January to March 1981).
- 1 January 1981 to be considered for attendance during 3d quarter FY 1981 (April to June 1981).
- 1 April 1981 to be considered for attendance during 4th quarter FY 1981 (July to September 1981).

Eligibility Criteria: Officers must meet eligibility

criteria and apply in accordance with AR 611-110. Officers may apply at any time but will be considered for attendance only in accordance with the windows listed above. Applications received from officers who are not eligible for a permanent change of station (will complete an overseas tour or at least 1 year of a CONUS assignment) during the requested attendance window, will be held at MILPERCEN until they are eligible for consideration. It is especially critical for overseas applicants to get their applications in on time.

Verification of physical qualification also must be received from the U.S. Army Aeromedical Center, ATZQ-AAMC, Ft. Rucker, AL, prior to the cutoff date for each consideration window.

Any officer may apply. However, those officers who are not branched Infantry, Armor, Field Artillery, Air Defense Artillery, Military Intelligence or Signal Corps and desire Specialty 15 must be willing to transfer into one of those branches. Those who desire Specialty 71 must be in or willing to transfer into the Transportation Corps.

After 1 October 1980, applicants must have 48 months or less active commissioned service prior to beginning training. If a branch transfer is required or desired, officers must not have attended their Officer Advanced Course (OAC) to be eligible for consideration.

Applications should be forwarded to:

- *For Specialty 15:* U.S. Army MILPERCEN, ATTN: DAPC-OPE-AV, 200 Stovall Street, Alexandria, VA 22332, AUTOVON 221-9794/9446.
- *For Specialty 71:* U.S. Army MILPERCEN, ATTN: DAPC-OPG-T, 200 Stovall Street, Alexandria, VA 22332, AUTOVON 221-7504.

This message does not apply to Medical Service Corps or other officers who would like to apply for flight training and designation in SSI 67J (Aeromedical Evacuation Officer). However, those officers may apply to: U.S. Army Medical Department Personnel Support Agency, ATTN: SGPE-MSD, Buzzard Point, Washington, DC 20324, AUTOVON 227-1469.

Officers may continue to apply at any time to attend during FY 1980 but should do so as soon as possible as remaining quotas are very limited.

For additional information, contact the offices listed above.

$ $$ Check Your ORB And Your LES—Now! $$$. Is the date in block number 45 of your Leave and Earnings Statement (LES) the same as the date in the aviation service entry date (ASED) block of your Officer Record Brief (ORB)? It also should be the same as that listed in DA Circular 600-16. If not, you could be in for early termination of flight pay—or overpayment followed by a collection action. Know what your correct ASED is and make sure it is listed correctly on your LES, ORB and DA Circular 600-16. If the LES date is wrong, contact your Finance and Accounting Office. If the ORB date is wrong, contact your Military Personnel Office. If DA Circular 600-16 is wrong, call us at AUTOVON 221-0727/0794. While you're at it, compare block number 46 of your LES with your total federal officer service (TFOS) date on your ORB and also in DA Circular 600-16. As you approach 18 years of officer service, this date also will affect your flight pay status. Remember, inaccurate records will catch up with you sooner or later.

A New Specialty 15 SSI. The Deputy Chief of Staff for Personnel recently approved a new special skill identifier (SSI) for Specialty 15 aviation positions: 15S (Combat Communications Aviation). This SSI will be used to identify command and staff positions in air traffic control units and for communications staff officers in aviation battalions. It joins the other SSIs recently approved by the Army Chief of Staff:

- 15A (General Aviation) identifies command and staff positions at Army training centers, nontactical flight detachments, Army air fields, and in the aviation research and development field; advisor positions with Army Readiness Regions; and aviation staff positions above division level.
- 15B (Combat Aviation) identifies command and staff positions in all types of combat aviation units, to include assault helicopter company/battalion, air cavalry troop/squadron or combat brigade, attack helicopter company/battalion, and division and lower aviation staff positions.
- 15C (Combat Support Aviation) identifies command and staff positions in combat support aviation units, to include assault support helicopter company/battalion, medium helicopter company, general support company/troop and other division and lower staff positions having a combat support emphasis.
- 15M (Combat Intelligence Aviation) identifies positions for aviation unit intelligence staff officers and command and staff positions in airborne intelligence gathering units, to include the aerial surveillance detachment/company, electronic warfare aviation company, or aerial exploitation battalion (CEW1).

Additionally, Signal Corps joins the existing branches that Specialty 15 aviators are authorized to hold: Infantry, Armor, Field Artillery, Air Defense Artillery and Military Intelligence. This means that officers who enter the Army beginning in fiscal year 1981 are authorized to request Signal Corps as their branch, and if selected, will attend the Signal Officer Basic and Advanced Courses. Conversely, Signal Corps officers who apply and who are accepted for flight training no longer have to branch transfer. More information on career opportunities for aviators with Signal skills will be forthcoming.

Reporting Final

Late News From Army Aviation Activities

FROM WASHINGTON

Television Stock Footage Availability. The educational television facility at Ft. Benning, GA, now has about 12 hours of good television footage of Soldiers and equipment in "combat type" situations, and they have volunteered to make it available to all as stock footage. The footage was shot during combat testing of the infantry fighting vehicle (IFV) at Ft. Carson, CO. For more information on the footage call Mr. Bennett Yeilding at Ft. Benning, AUTOVON 835-4534/1084; or Mr. Roy Smith, ATTSC-ET-EV, AUTOVON 927-4764. **(ODCST Newsletter)**

Award Approved. Big Thompson Flood Disaster Relief Operation has been approved for award of the Humanitarian Service Medal (HSM). Personnel who directly participated in the operation in Colorado during the period 31 July 1976 to 3 August 1976 are eligible for award of the HSM. Further information may be obtained by contacting the Personnel Actions Section, Adjutant General Division, at the U. S. Army Military Personnel Center, HQDA.
(MILPERCEN)

FROM FORT EUSTIS

Black Hawk Test Pilots. The first UH-60 Black Hawk maintenance test pilots were graduated 29 February by the U.S. Army Transportation School. The milestone came less than a year after the tactical transport helicopter reached Army units in the field.

CW3 Edwin L. Williams, WO Michael C. Karageanis and CW3 Donald F. Long of the 158th Aviation Company at Ft. Campbell, KY, are the first qualified maintenance test pilots. The first instructors for the UH-60 Black Hawk Maintenance Test Pilots Course were CW4 John R. Benham; CW3 Gregory S. Grotton; SFC Hubert Futrell; and SSG James F. Craig. **(USATSCH-PAO)**

FROM FORT RUCKER

Welcome Home General Lilley. The guest speaker at a recent graduation ceremony of the officer and warrant officer rotary wing aviators was a member of the first class of aviators to graduate at the post in 1955. He is BG Aaron L. Lilley Jr., Director, J-4 (Logistics), U.S. Readiness Command, and Deputy Director of Deployment Logistics, Joint Deployment Agency with headquarters at MacDill Air Force Base, FL.

General Lilley told the 41 graduates that until recent years the aviation field had no separate branch for career management. "I think we have come a long way in the aviation field," he said. "We now have a recognized career management branch where you can get help with managing both your military career and your Army aviation career. You are the most important manager of your career."

General Lilley told the new aviators of the importance the Army now has in the overall military aviation field. "Army aviation and helicopters will play an important part in any confrontation of forces," he said. "And they will be used very early in any future conflict."

Aviation Center Hosts HISWP. The Aviation Center hosted the Fourth Helicopter Interservice Working Party last month for representatives from eight North Atlantic Treaty Organization (NATO) nations—Belgium, Canada, France, Germany, Netherlands, Portugal, United Kingdom and United States. They discussed rationalization, standardization and interoperability (RSI) issues that confront the NATO nations as relates to helicopter operations.

The goal of HISWP is to improve standardization among NATO nations in doctrinal literature and develop interoperability of equipment between nations.

4,500 Safe Flying Hours. James W. Tomberlin, an instructor pilot for Doss Aeronautical Services, Inc., at Ft. Rucker, has been awarded a plaque in recognition of "4,500 consecutive flying hours without his or any of his solo students damaging an aircraft..." from January 1971 to January 1980. He is the first Doss IP to achieve such a record.

Award Time. In the annual competition conducted at Ft. Rucker, AL, by the local chapter of the Army Aviation Association of America (AAAA), CW3 Ernest W. Rickenbacker II and SFC Loran A. Patterson were selected as the Outstanding Aviator of the Year and the Aviation Soldier of the Year.

CW3 Rickenbacker is the senior training, advising, counseling (TAC) officer in the 60th Company, 6th Battalion, 1st Aviation Brigade. SFC Patterson is a senior instructor in the Deployment Branch, Air Traffic Control Division, Department of Academic Training.

Other awards made at the AAAA presentation ceremony were to the Army Aviation Board as the Outstanding Unit of the Year and to the 282nd Aviation Company as the Outstanding Reserve Aviation Unit. Those were accepted by COL Robert

Four-bladed Cobra. **In flight test at Bell Helicopter Textron this four-bladed Modernized AH-1S Cobra has reached speed of 170 knots. It uses the advanced rotor system designed for Bell's new Model 412 transport helicopter**

A. Bonifacio, board president, and MAJ Hans D. Langhammer, 282nd commander.

Aviation Enlisted People Win Top Honors. The Soldier and Noncommissioned Officer of the Year at Ft. Rucker are SP4 Susan K. Ingwell and SP5 Robert J. Black who are, respectively, a flight simulator instructor and an air traffic controller. Their selection from the 1979 monthly winners in each category was announced 8 March. Specialist Black is also Ft. Rucker's Air Traffic Controller of the Year. He will leave the Army Aviation Center soon to attend Officer Candidate School at Ft. Benning, GA.

Specialist Ingwell, who has been in the Army for 2 years, is a console operator on a UH-1 Huey flight simulator in the Department of Academic Training, where she works with student as well as rated aviators.

Best of 62 Females. Warrant Officer Irene "Dottie" Holmes earned the highest academic average of any of the 62 females who have completed the Rotary Wing Aviator Course at the Aviation Center since the first female was graduated in June 1974. She was graduated with Warrant Officer Rotary Wing Aviator Class 79-35 last month with a 91.7 average. Her next assignment will be with the 124th Army Reserve Command in Everett, WA.

Broken Wings. Robert B. Long Jr., an instructor pilot with Doss Aeronautical Services, Inc., at the Aviation Center has received the Army Aviation Broken Wing Award for his flying skill during an inflight emergency. Mr. Long distinguished himself during the forced landing of his helicopter while flying with a student 18 September 1979. While at 2,000 feet with the student at the controls a loud thud was heard from the rear and the aircraft yawed to the right. Mr. Long took the controls, turned on his transmitter switch and scanned the instruments. He radioed that he was declaring an emergency and suspected tail rotor or engine compressor problems, then demonstrated the highest degree of aviator proficiency and discretion, to make a safe landing without injury or damage. **(USAAVNC-PAO)**

FROM FORT POLK

Broken Wing Award. CPT Michael G. Johnston has received the Broken Wing Award for the skill, sound judgment and ability to act decisively under pressure he displayed in landing a U-21A Ute aircraft with the landing gear up because of a malfunction.

The incident occurred in September at Ft. Polk. When he was unable to get the landing gear down, CPT Johnston took necessary precautions so that he had used up most of the aircraft's fuel and had made exact compensations for the wind before he touched down in the center of a foam-covered runway. He maintained control of the aircraft as it skidded on its belly to a safe stop. There was only minimal damage to the plane and no injury to its six occupants.

(5th Inf Div (Mech)-PAO)

First Black Hawk Rappel. **A soldier from the 3rd Battalion, 187th Infantry, 101st Airborne Division (Air Assault), the first tactical unit to rappel from the UH-60 Black Hawk, makes a clean jump during rappelling exercises 9 January**

(U.S. Army Photo by Pamela Bellman)

FROM MARYLAND

Highest Aviation Unit Safety Award. The 247th Helicopter Ambulance Medical Detachment (HAMD), Ft. George G. Meade, MD, under the command of MAJ Richard Pecoraro recently was presented with the U.S. Army Aviation Safety Award of Excellence, the Army's highest unit safety award. Colonel Thomas Fitzpatrick, Ft. Meade post commander, made the presentation in commemoration of 6 consecutive years, 1973 to 1978, of accident-free flying. The 247th HAMD flew more than 1,900 patients on medical evacuation missions totaling more than 8,200 flight hours during this time.

FROM FORT BRAGG

Award of Excellence. The Army Award of Excellence for Safety was presented recently to the 82nd Airborne Division's Headquarters Troop, 1st Squadron, 17th Cavalry. "We have four UH-1H Hueys compared to seven in the line units," said CWO Andrew Signor the safety officer, "but we fly an equal amount of time." The award covers 5,528 hours of tactical missions, nap-of-the-earth flying and joint training missions.

CWO Signor said that one factor in the unit's success is command interest. Another is the monthly safety class. While there is a rapid turnover in personnel, one stabilizing factor has been SFC Gerald O. Bouchard, the maintenance supervisor. SFC Bouchard, however, says it's not a one man job. "There are too many things that can happen for one person to keep track of it all," he said. "It's an everyday kind of thing. Everyone, the mechanics, pilots and crews all have to think safety-first all the time." **(82nd Airborne Div-PAO)**

FROM GERMANY

Air Rescue. A potential tragedy was averted recently when five helicopters calling for emergency assistance were brought down safely by members of the 5th Signal Command's 59th Air Traffic Control (ATC) Battalion. The incident occurred in the vicinity of Kitzingen, in mid-January during the 3rd Infantry Division's 'Carbon Blade' field exercise.

Four AH-1G Cobras and one OH-58 Kiowa from the 3rd Combat Aviation Battalion had been flying visual flight rules (VFR) when they ran into problems and lost their visual reference to the ground. SFC Gary Johnson, ATC chief at Kitzingen, said one craft was low on fuel and the other four could have run into gas shortages had they not made quick contact with Kitzingen ground controllers.

Coincidentally, SFC Johnson and two controllers, SSG Patrick Fitzpatrick and SP5 Gerald Pearce, from the 189th's third platoon were in the Kitzingen radar room about 45 minutes and were just about to leave when the emergency call came through. When contact was made, the pilot of the first helicopter agreed to fly into Kitzingen rather than Ansbach as

he had planned. SFC Johnson said he told the controllers choppers number two and three would follow suit. The last two aircraft were about a mile behind. During the approach, aircraft two and three broke off unexpectedly and headed south toward Gibelstadt where the 189th's controllers SP4 Bruce Forester and SP4 Linda Bradley brought them safely into the tactical site. Helicopters one, four and five landed safely in Kitzingen, refueled and took off again to join the other two.

(5th Signal Command-PAO)

FROM FORT HUACHUCA

Airborne ATC. The 245th Air Traffic Control Company (Forward), 58th ATC Battalion (Corps), Ft. Bragg, NC has organized its 1st Platoon as an airborne platoon in support of XVIII Airborne Corps and 82d Airborne Division. Comprised of air traffic controllers, radio-teletype operators and maintenance support personnel, the 1st Platoon holds the distinction of being the only airborne air traffic control unit worldwide, assigned to the Army Communications Command.

Jumpers in the platoon maintain their airborne currency with scheduled jumps from aircraft flown by unit aviators from the 58th ATC Battalion. Jumps began last December with SSG Donald Varney, platoon sergeant, acting as jumpmaster. When asked how airborne training relates to tactical air traffic control, SGT Varney said, "We are the only unit available to the 82d Airborne for tactical airfield support. When division goes, we go with them. If they jump in, so do we." When asked how she felt about being the only female airborne Soldier in the platoon, SP5 Gloria Nickerson said, "It makes no difference to me. Challenges are put to Soldiers, not to men and women. I'll try anything that's expected of me as a Soldier." **(USACC-PAO)**

30,000 Accident-Free Hours. The U.S. Army Intelligence Center and School's Aviation and Maintenance Division has been awarded the Army's Aviation Accident prevention Award of Honor for accident-free flying for the period of 26 April 1976 through 25 April 1979. USAICS' aviation division with 11 aircraft and 20 pilots, accumulated 30,000 hours of flying the OV-1 Mohawk without a major accident. **(Ft. Huachuca-PAO)**

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VIEWS FROM READERS

Editor:

It is easy to look behind and see the long trail of equipment leading up to our modern attack helicopters. The desire for mobile firepower traces the history of warfare. The mobile firetowers of the Romans beseiging a city, Hannibal's elephants, the advent of mounted warriors, towed artillery, the development of tanks and the more recent development of attack aircraft all lead to our superb fighting vehicle, the attack helicopter.

No system is perfect but even the most conservative general and the most cynical warrant officer aviator can see the possibilities of the attack helicopter when properly employed against an armored unit.

The future is not as easy to fathom of course. The advanced attack helicopter (AH-64) seems to be shaping up to be an even more remarkable vehicle and even more important, to be a devastating weapon for the future battlefield.

The question is . . . what next? Why should the next attack helicopter be a helicopter? The time of the rotary wing attack aircraft seems to be coming to an end.

The USSR and Great Britain have fielded excellent VTOL/STOL attack aircraft which fit into the future needs of the U.S. Army.

The Russian YAKOVLEV, Yak-36 Forger is a very high performance aircraft that is presently being utilized by the Russian Navy. Janes' ***All the Worlds Aircraft*** says that the Russian ship *Kiev* . . . "should be capable of carrying 25 V/STOL aircraft or 36 helicopters. It is believed, however, that a mixture of V/STOL aircraft and 'Hormone' (KA-25) helicopters is the most likely complement." (1978, p. 209).

The British Harrier is more familiar to us because of its use by the U.S. Marine Corps. The AV-8 Harrier is an amazing machine. "It's able to carry 30 mm guns, bombs, rockets and flares of U.K. and U.S. designs, . . . A Sidewinder installation is provided for the AV-8A version to give the aircraft an effective air-to-air capability in conjunction with the two 30 mm guns." (Janes' ***All the Worlds Aircraft,*** 1978, p 209).

The air-to-air threat at low altitudes is another element of danger becoming a reality to rotary wing aviators. ***Army Aviation Digest*** (April 1979) carried as its number one article, "Air Combat." Low altitude air-to-air combat requires a maneuverable, fast, survivable vehicle that can operate in the helicopter environment. Today that environment is terrain flight. Tomorrow it may change. As published in numerous reports, the Harrier is a formidable dogfight aircraft especially at low altitudes and airspeeds.

The attack aircraft mission of the combined arms team is a divided mission. The joint attack system using Air Force close air support and rotary wing attack aircraft killing specific hard targets is a system superior to any other known attack system. Combined with artillery fires, electronic warfare attacks of specific enemy units and commands and other available ground fires, direct and indirect, will cause any enemy force a great deal of trouble. This combined team (not all-inclusive by the way) should be able to defeat any known enemy threat. In fact it may be the best way to contain and destroy the "Forward Detachments" of an enemy force (***Military Review,*** April 1979, p 66).

The use of a "Harrier" type aircraft for the AAH role could fill the gap in the presently separated mission structure. It may be possible to reduce the U.S. Army's reliance on U.S. Air Force close air support, thereby freeing Air Force assets for their primary mission of maintaining air superiority over the battlefield. There may be monies saved by placing the close air support mission back to the Army or corps commander. Past misuse of ground support aircraft in World War II point out the dangers in this system but a VTOL capability, living in the field and filling the attack role presently filled by the attack helicopter, would add substantially to the Army attack capability.

The most obvious addition would be that of available performance. The present and future attack helicopters must better the performance of the enemy that will be met on the battlefield. In the terrain flight environment we are about even in performance with our present aircraft but the VTOL capability of the Yak-36 and its offspring will certainly be used in the Russian Army as well as the Navy. The Russian Air Force seems to be very preoccupied with providing its aircraft with STOL capability. This capability is for operating out of short, quickly prepared airstrips. The use of the Yak-36 to increase this capability would seem logicial.

Why does the Army attack aircraft need a very large, delicate and complicated rotor system? To hover we only need a column of air. Why can't the attack aircraft have a supersonic dash capability? Why not carry "smart bombs"? We obviously can. The Harrier is here and serious improvement is in progress. It might serve us well to investigate this fine aircraft and test its use in our Army aviation mission as the next attack helicopter.

MAJ Thomas A. Green
III Corps, G-3 Avn
Ft. Hood, TX 76544

Editor:

The establishment of an effective ALSE [aviation life support equipment]

program should be of paramount importance as the safety, welfare and preservation of personnel and equipment will be the only salvation offered the commander. Assets lost, never to be regained, are senseless losses. Technological resources for survival are only as effective as they are *available, operable* and in the possession of individuals who have the necessary training to properly utilize these resources. Without one or all of the aforementioned resources these individuals are doomed to become victims, either by the misfortune of war, accident or the ineffectiveness of the *"system."*

A tremendous amount of emphasis on ALSE in the name of safety is being perpetrated down the chain and the old ineffective method of "CYA" has once again prevailed. The upper echelon commanders want absolution from their superiors just as the commanders down to the company level do. In response to the generated "problem," directives and supplements flow down the chain accompanied by inspectors from higher headquarters and various proponent agencies. In an effort to comply with often times impossible requests (i.e., no money, no equipment, etc.), the whitewash begins. This effort is very seldom responsive to the problem of ALSE in that quick compliance to the directives mentioned previously are virtually established in the form of one program or another but are not tailored to individual unit resources be they limited or plentiful.

If standardization of ALSE is ever to become a reality, funding, procurement priorities, TOE/TDA reorganization, and personnel and training must be provided. This priority must be initiated at Department of the Army level and guidelines in the form of applicable manuals, regulations, formal training and alternatives to impracticable situations must be fielded to give those of us in the field a "fighting chance."

Duncan Wortmann
Ft. Rucker, AL 36362

Editor:

The lack of interest in or lack of knowledge of aviation safety has again been emphasized by the latest decision of the Army to adopt a new combat uniform which may create a body bag/shell for the poor infantryman wearing it into combat. First it was nylon web gear to give the Soldier caught in an aircraft fire a permanent set of wide stripe beach wear complete with belt; now it's the 50 percent nylon, 50 percent cotton combat uniform to complete the Soldier's "Death Trap."

I have visions of surviving a post crash "flash" in my Nomex only to watch a Soldier with the most modern equipment known to man running through the desert burning like a Zippo lighter. It is completely beyond my comprehension why in one of the largest cotton producing countries in the world that we should allow our Soldiers to suffer from what would otherwise be minor burns strictly for the interest of a permanent press, easy care uniform. I for one would rather suffer the flaming breath of the distraught commander for a wrinkled uniform over the flaming hell of death by *melting.*

CW2 Ronald W. Knoop
Aviation Safety Officer
2d Platoon, 507th Medical Company
Ft. Bliss, TX 79916

Editor:

Your February 1980 issue of ***Aviation Digest*** was particularly well done. I enjoyed "McNair Vs. The Bull," very much. I think most aviators have had similar flights and it was fun to be reminded of mine. The article by CW3 Cook, "Tips For Instrument Flight Planning," was very helpful to me during my annual instrument check ride. I would like to see more "how to" articles from experienced aviators such as CW3 Cook in the future issues.

CPT Kermit G. Price
501 Navaho Drive
Enterprise, AL 36330

• Copies of "Tips For Instrument Flight Planning" are available by writing to Editor, *Aviation Digest*., P.O. Drawer P, Ft. Rucker, AL 36362, or by calling: AUTOVON 558-6680 or commercial 205-255-6680.

Editor:

Enclosed you will find two poems which I wrote in 1969 and have had stuffed away since. I thought they might be of some interest to some of the readers of the ***Aviation Digest*** magazine.

CW3 Robert J. Buchanan
4/498th MED CO (AA)
Ft. Jackson, SC 29207

WHAT IS IT

What is it
Just colors to some
To a wife a tear, a son no father
a silent prayer for a son, from his mother
a muffled sigh from those who no longer serve but understand
To those that HONOR it and those that wear it all of what is said and more
What is it
a scar no doctor's knowlede can ever remove
a memory tried to be forgotten, but never will
the last ounce of courage, the look of pain, the thought and ever reminding terror found on the battlefield
What is it
Just Colors To Some
The reminder that freedom will never be lost, nor ever come easy
Yes, this and so much more is the Flag, Flown in many places;
The Purple Heart worn by so many, But BOTH understood by "So Few"

HAVE YOU EVER SEEN

Have you ever seen — Bombs fall, Metal fly and fires rage
Have you ever seen — Tracers fly, people hide
Have you ever seen — Wars starving life as Armies March
Have you ever seen — Bullets tear, Bodies fall, A flash of fire,
Have you ever heard — Metal fly and Grown men weep the cry "Medic"
Have you ever seen — Children weep and Mothers cry as Fathers die
Have you ever seen — A candle's light snuffed out; If you have not Thank the Veterans for what you have never seen

PEARL'S

Personal Equipment & Rescue/Survival Lowdown

If you have a question about personal equipment or rescue/survival gear, write PEARL, DARCOM, ATTN: DRCPO-ALSE, 4300 Goodfellow Blvd., St. Louis, MO 63120

Women On The Move

Our congratulations to Private First Class LuRee Albright of the 132nd Aviation Company, Ft. Benning, GA. She was selected for aviation life support equipment (ALSE) training at Chanute AFB, IL. PFC Albright has expressed a keen interest in the ALSE area, her primary military occupational specialty (MOS) being 67U10. PFC Albright is one of several women identified to the ALSE program and we are sure we will be hearing more from her as she completes her training and fast becomes an ALSE "expert."

Crew Light

In PEARL, January 1980, we told you about the ACR/FA-11 crew light, which comes in orange with a nylon lanyard. It has now been assigned an NSN, 6230-01-035-6077, and can be ordered "off-line" from FPZ. The cost is $6.00 each. The ACR/FA-11 (M), which is olive drab and has no lanyard, has not yet been assigned a stock number, but may possibly be procured locally. The manufacturer is ACR Electronics Corp, 3901 North 29th Ave, Hollywood, FL 33020. (Thanks to MAJ Bill Durand, aviation advisor, SDARNG, for this information.)

ALSE Activities

The Aviation Life Support Equipment Management Steering Council, composed of representatives of The Surgeon General, Training and Doctrine Command Forces Command, Development and Readiness Command, U.S. Army Safety Center and the Army National Guard, convened 29 to 30 January 1980 in Washington, DC. Agenda items discussed ranged from the status of the ALSE MOS and Training Circular 1-62, "Training Requirements for ALSE in Aviation Units," to the On-Board Oxygen Generating System and laser protective equipment. Representatives of major commands were in attendance at all open sessions. Mr. Al Cargen, Hqs Fifth U.S. Army Aviation Safety Office, reviewed the actions they took to identify aviation life support equipment officers/warrant officers in all Army Reserve aviation units.

The Army National Guard convened its second "hands-on" ALSE Workshop 5 to 16 February 1980 at North Little Rock, AR. Of primary concern was instruction on the establishment of ALSE maintenance shops at ARNG flight facilities and the training of ARNG personnel to staff these shops. In addition, some active Army and Army Reserve personnel were invited to attend.

The ALSE facility at Ft. Bragg, NC, was the scene of intensive ALSE training 14 January to 1 February 1980. SP5 Larry Bowers, 517th Trans Co, developed the ALSE course and was the instructor. Major General E. A. Partain, Deputy Commanding General, XVIII Airborne Corps, presented the Certificates of Training and ALSE associate memberships to course graduates.

Questions And Answers

What are the correct NSNs for the screw, slotted, and plate, jack holder, used on the SPH-4 flight helmet? (SFC Brian Dawson, RIARNG, Quonset Pt., RI)

Change 3 to TM 10-8415-206-13 lists the NSN for the screw, slotted as 5305-00-152-2681. Cross-checking the part number, 69A2036(97427), gives an additional NSN of 5305-01-044-7460. The Army Master Data File (AMDF) lists both numbers, and apparently either is correct. Cross-checking the part number, 69A2037 (97427), for the plate, jack holder, gives an NSN of 5340-01-007-8366. The items are available from S9I. Check your AMDF for current prices.

● ● ●

Has the shelf life of the survival kit food packets been extended to 5 years? Can they be extended by the post veterinarian? What is the authority? (CW2 Bob Baccardi and CW2 Glenn Cathen, D Trp, 110th Cav, Ft. Carson, CO)

According to the Defense Personnel Support Center, who manages this particular item, the basic shelf life of the food packet, NSN 8970-00-082-5665, is 36 months. However, your post veterinarian can extend the shelf life a maximum of 6 months at a time in accordance with Defense Logistics Agency Regulation 4155.5, Appendix S, which prescribes the inspection criteria for this item.

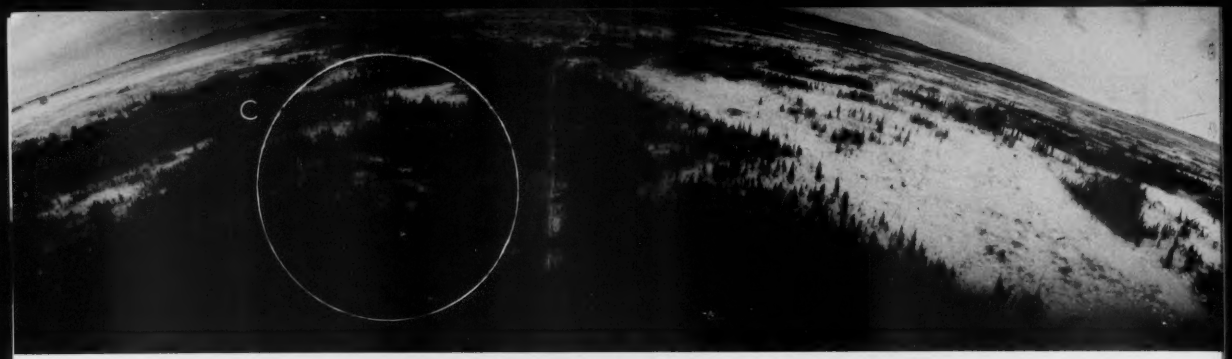
● ● ●

Is the "slap test" for survival kit water cans prescribed in TM 55-1680-317-23&P still valid? Our local food

Nettie Garth Photo by Tom Greene

service personnel claim that this method of testing is not valid. (CW3 Grant Curtis, HHT 3d ACR, Ft. Bliss, TX)

The Vacuum retention (slap) test given in paragraph 2-12*c*(3) and TM 55-1680-317-23&P *is* valid. If any of your canned water fails this test, it is unserviceable and should be replaced in accordance with SC 1680-99-CL-A02. (Also see page 22, this issue.)



Mohawk nose camera provides panoramic view of terrain. Zeroing in on particular portion of photo, a commander can determine what type activity is taking place in his area of operation, and plan his mission accordingly

"Touch of Gold" MIDAS ALASKA

SFC Don Carr
and
SP5 Greg Thomas

Public Affairs Office
172nd Infantry Brigade (Alaska)
Fort Richardson, AK

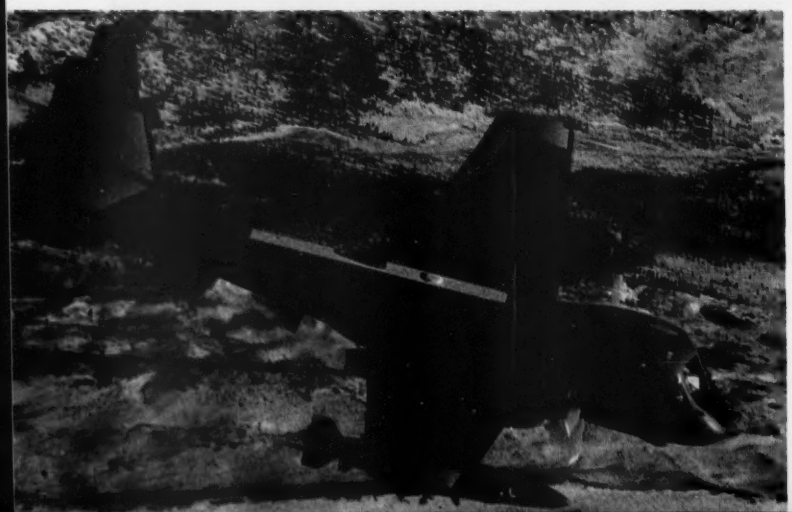
Photos by SP5 Greg Thomas

WINNERS OF battles have always been those who made the right decisions—fast. Commanders of 172nd Infantry Brigade (Alaska) units, constantly drilling their Soldiers in the art of Arctic defense, find this bit of trivia compounded by the fact that their decisions also must take into account the earth's harshest terrain, in some of the world's most diverse weather.

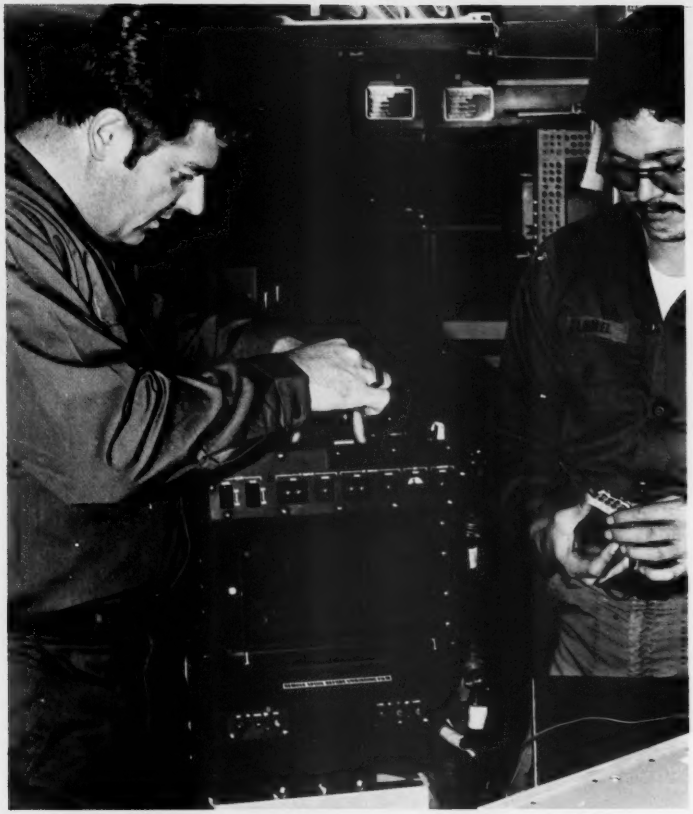
Helping commanders make their decisions are the Soldiers of the 172nd Military Intelligence Detachment (Aerial Surveillance) (MIDAS) at Ft. Richardson, AK. The unit is that "touch of gold" commanders here need when fast, accurate information must be gathered to make decisions about Arctic warfare.

Providing aerial surveillance to a variety of activities in the country's northernmost frontier, MIDAS, according to Captain Mack Gardner, brigade aerial surveillance officer, is the only organization available for such intelligence gathering. And the remoteness of most areas makes the Mohawk's photo-gathering capability even more significant—not just in response to a commander's tactical situation, but to the community as well.

The Mohawk is the unit's specially equipped airplane and the "harshest terrain" it must cover takes up 560,000 of the earth's square miles. From the state's three major mountain ranges; to its hundreds of miles of wide-open plains; to its virtually endless waterways; the "Last Frontier" confronts those who enter it with challenges that are not found



When commanders in the Alaska Brigade need quick information they can call on the 172nd Military Intelligence Detachment (Aerial Surveillance) (MIDAS) and its swift Mohawk OV-1 aircraft for positive response



Above, SP5 Richard Laurel, right, and an unidentified Soldier of the 568th Trans Co pull maintenance on side looking airborne radar component, part of the equipment that makes the Mohawk an intelligence-gathering wonder. Keeping the MIDAS Mohawks airborne are aviation mechanics like SGT Bobby Mahannaha, shown below checking intricate areas on one of the plane's engines

anywhere else on Earth.

These challenges are made even more real by weather conditions which can change drastically two or three times in the space of a 500-mile flight. Captain Gardner points out, "You can take off in clear weather, fly in foggy and rainy, visibility zero weather, and land in ice fog or blowing snow so thick you'd need a knife to cut it."

The OV-1 Mohawk, most sophisticated fixed wing aircraft in the Army's inventory, can provide aerial reconnaissance and surveillance in any of that weather. The plane's capabilities are possible because of its side looking airborne radar (SLAR), infrared and other photographic equipment.

During tactical exercises like "Jack Frost," MIDAS' crews and imagery interpreters have been able to fly a mission, develop and interpret film, and provide commanders with requested information within 3 hours. This is no small feat when distances and weather are considered. Later, a commander can even see finished prints to make final decisions.

The SLAR can record images as far away from the plane as 100 kilometers, and from altitudes up to 20,000 feet.

"The SLAR," said Captain Gardner, "produces a photo-radar map of the ground. It can get pictures of both fixed and moving objects."

In addition to the SLAR, other camera equipment mounted on the plane includes a panoramic black-and-white camera, which can shoot horizon-to-horizon photos, at the front of the plane; and, another panoramic camera and vertical camera in the plane's belly.

While features like these may apply to any MIDAS unit, Captain Gardner is quick to point out that the 172nd MIDAS is indeed unique, and not just because of the area it operates in. "MIDAS units in Korea, Europe or Ft. Hood, TX don't have nearly the area to cover, nor do they have our variety of missions," he asserted.

For example, when the Alaska Air Command staged an airliner crash over the Polar Ice Cap early in 1979 a Mohawk crew out of Ft. Wainwright did in 5 minutes what other units involved were taking considerably longer to do—find the downed aircraft.

When oil spilled from a barge in Homer, AK, one of the Mohawks, using its infrared camera, flew over the area recording the boundaries of the spill so clean-up crews could plan and begin their operation.

When fires scorched thousands of miles of the Ft. Greely/Delta area last summer, Mohawk crews provided fire bosses with information about fire perimeters and "hot spots."

"We also provide the only Arctic training base for MIDAS crews to learn how to operate under the coldest conditions," said Captain Gardner. He remarked with a smile: "Mohawk refuelers at Ft. Hood haven't seen anything until they're bent over the wing in minus 70-degree Fahrenheit weather to guide the nozzle into the wing tank!"

SP4 Eric Franzen, an imagery interpretor, studies some of the film turned in by a MIDAS crew following an aerial surveillance mission

The distances Mohawk crews fly are almost unreal. With only about 1,500 miles of highway in the state (and only 500 of that paved and 63 of that more than two-lane) the only way to "scope the situation" is from the air. Flying from Point A to Point B, then, is not as simple as it sounds when Point A is Ft. Wainwright, and Point B is Prudhoe Bay, originating terminal for the Alaskan Pipeline, 440 miles north.

"There have been times," Captain Gardner said, "when the only people we can talk to on those flights are airline pilots making trips over the Polar Ice Cap. Conventional aircraft radios just aren't strong enough to reach the distance we fly.

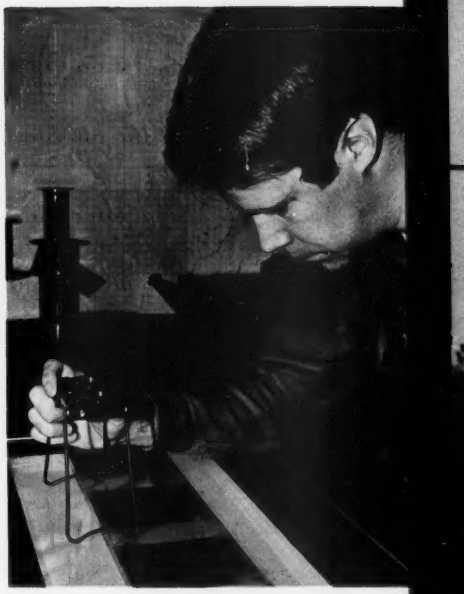
"Going down is something a Mohawk crew in Alaska must be especially prepared for, because it could go down in an area where no one would see it. So the crews carry everything from extra wool socks to a survival vest."

"Everything" includes two felt liners, mukluks, long johns, flight suit, dickie, flying coveralls, gloves, scarf, orange panels (for signaling), face mask and extra food.

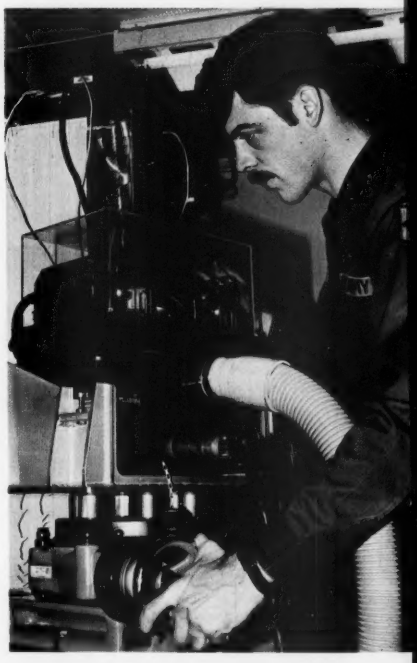
"What pilots eject with," said Captain Gardner, "is what they'll survive with—or die without."

The Mohawk crews are prepared for all aspects of their mission. Whether a flight is to provide information for oil spill clean-up or enemy troop and equipment data, the Soldiers of the 172nd MIDAS are ready to provide that "touch of gold"—as only the Mohawks can.

SGT Craig Bouffard, aircraft mechanic, painstakingly covers every inch of an OV-1 Mohawk aircraft before a mission. The severe weather and expanse of terrain overflown require premium maintenance



Below, SP5 John Phoebus performs maintenance on an inertial navigational system, an integral part of Mohawks, necessary for their far reaching aerial surveillance flights



A helicopter crew from the 196th Aviation Company completes another waterborne mission at Ft. Bragg's Smith Lake

SPLASH DOWN

Story and Photographs by
SFC Ron Freeman
Public Affairs Office
John F. Kennedy Center for Military Assistance
and
U.S. Army Institute for Military Assistance
Fort Bragg, NC

THE HELICOPTER MADE a sudden bank to the left, began to fall and then splashed into the lake. Although this sentence appears to be the beginning of an accident report, in reality it described water operations training done last January by the 196th Aviation Company at Smith Lake, Ft. Bragg, NC.

According to Chief Warrant Officers Jack Scott and Michael Udeck, aviation training has to be "flexible and diversified. You've got to train the way you may have to fight and water operations are something we may be called upon to do in combat," said Mr. Scott. Mr. Udeck added, "Also, in peacetime we may be called upon to rescue flood victims or conduct special operations."

Warrant Officers Scott and Udeck are the standardization instructor pilots for the 196th, the only CH-47 Chinook company on Ft. Bragg. "Organizing water operations training was not easy," admitted Mr. Udeck. "We're lucky because there are Special Forces (SF) here at Ft. Bragg. Divers

"Crew chief to pilot, clear right"

Splash down

TOP, FAR LEFT: SGT Lacy Criscoe cuts the engine as their rubber craft approaches the shore. **LOWER, FAR LEFT:** The men of Operation Detachment A-745 yank their boat ashore where it will be concealed before departing on their mission. **TOP LEFT:** "Green Berets" from Co. A, 2d Battalion, 7th Special Forces Group (Abn), JFK Center, unload their boat from the cargo ramp of a Chinook. **LOWER LEFT:** A helicopter crew from the 196th Aviation Company completes another waterborne mission at Ft. Bragg's Smith Lake.

from the 7th Special Forces Group (Abn) checked the bottom of Smith Lake for any submerged objects and then put out buoy markers to keep us from running aground. Then they stood by just in case of an emergency."

Time and again the big Chinook made its approach and splashed down. Once afloat, the big helicopter maneuvered in the small lake with ease. "The CH-47 can stay afloat for up to 30 minutes," remarked Mr. Scott. "Even so, some of the new pilots were doubtful and expected water to start leaking into the cockpit at any time."

Mr. Udeck explained the Chinook's 30-minute water operation time. "The Chinook is not water tight, but it is water resistant. Water seeps in through the riveted seams and slowly floods the cavity between the skin of the aircraft and the cargo hold. If we need to operate longer than a half-hour, we just lift off, let the water drain and sit back down."

Midway into the first day's training, the "Green Beret" divers saw a chance for some training on their own. On the next sortie, the CH-47 was directed onto the beach and the troops of the 7th loaded their equipment aboard.

On the next pass the CH-47 started its descent and soon splashed down. Before the mist could clear, a scuba team shot from the cargo ramp of the Chinook. Two men secured weapons and equipment while the third fired up the outboard motor. Soon the SF mission was heading for the distant shore.

"This is the first time we've tried infiltration by water landing," commented the "A" team leader. "Usually we heliocast from the back of a Chinook, but in shallow lakes such as Smith, heliocasting is dangerous. Now we have another option in our playbook."

At the end of the second day of water operations the 196th had renewed the currency of 98 percent of its pilots. For the men of the U.S. Special Forces, it gave them a chance to do some useful scuba and small boat training.

VICON

IN THE PAST FEW years there has been an increasing number of incidents between aircraft on the ground due to a misunderstanding of controllers' instructions. The most notable of these was the collision between two 747s at Tenerife in the Canary Islands on 27 March 1977 when Pan American and KLM Boeing 747s collided on the runway. There were 582 fatalities and only 61 survivors.

This incident, plus numerous others of somewhat less notoriety, has given rise to a new means of preventing them. One such item is being tested by the Federal Aviation Administration (FAA) at a few selected civil airports. Those aviators who fly into civil airports may encounter this new item of equipment. It is called **VICON which stands for Visual Confirmation of Voice Takeoff Clearances.**

We already know why there may be a need for it, so here are the other particulars:

VICON is a simple light system that confirms the controller's voice instructions. It is by no means a control system; it only visually confirms the spoken word. The lights will be a cluster of three. They will be pulsating green lights known as the VICON light cluster. The cluster always will be located in the left front quadrant of the aircraft when the aircraft is on the runway in the takeoff position.

The pulsating lights will be easily identified from the standard runway lighting configuration. The lights also are aimed in such a manner that they are easily seen from the left side of the cockpit. Upon issuance of the verbal instructions (takeoff clearance), the controller will push a button that activates the cluster lights. The pilot awaiting clearance first hears the instructions (takeoff clearance) and then observes the pulsating green lights confirming that the instructions are for him. If no lights are observed where this system is installed, the pilot should query the tower as to the nonreceipt of the confirmation lights.

As the aircraft starts the takeoff roll, a short distance down the runway it will break a microwave beam that will automatically turn off the VICON lights. For sites where microwave beams are not installed, a timing device will be used to turn the lights off. At departure points where the timing devices are used, it is possible that the lights may go out prior to the aircraft's departure. This in no way is an indication that the departure clearance has been cancelled. Only the voice instruction from the tower can cancel the clearance.

The FAA emphasizes that the system is still undergoing changes and some problems may arise since it is still in the testing phase. Aviator inputs concerning the system, whether good or bad, are a necessary part of the testing cycle and without them FAA is only guessing as to VICON's effectiveness. These inputs will facilitate changes, improvements and modifications to further enhance safety of airport operations. Please let FAA know your opinions/criticism.

CAUTION. The VICON lights are not a clearing authority. Pilots should not take the active or takeoff upon receipt of a green light only. **THE VOICE CLEARANCE IS THE ONLY CLEARING AUTHORITY!**

Readers are encouraged to address matters concerning air traffic control to:

Director
USAATCA Aeronautical Services Office
Cameron Station, Alexandria, VA 22314

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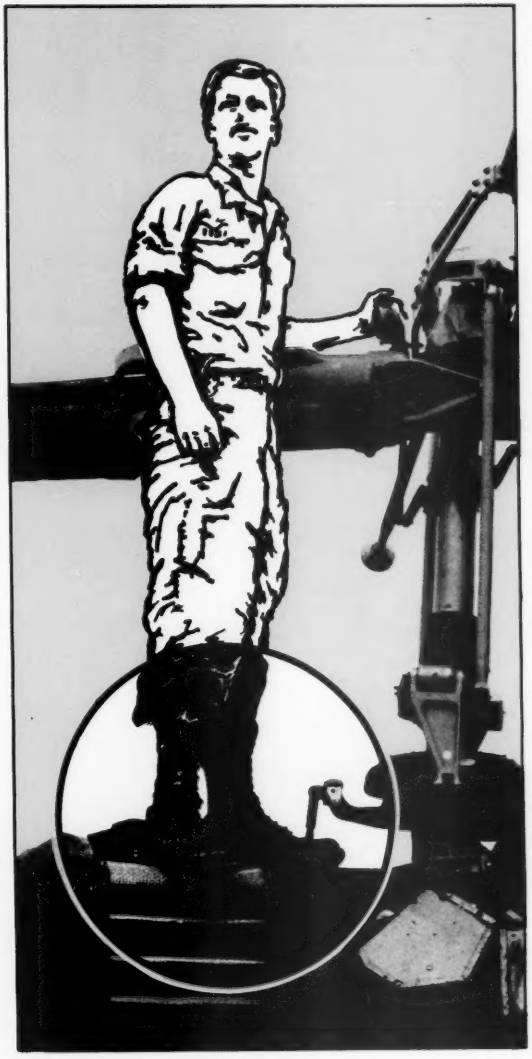


The photograph at left which appeared in a recent Aviation Digest brought the mail truck to our door, and is doing its part to help the Postal Service turn a profit. One letter suggested the photo would "serve as a great poster." We agree, and recommend this poster for bulletin boards. Editor.

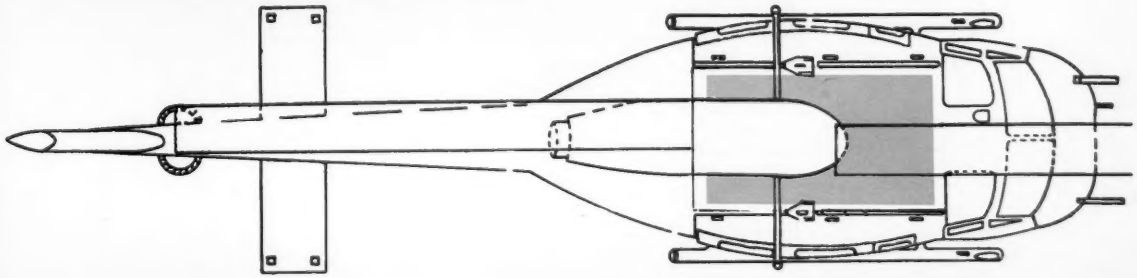
FOREIGN OBJECT DAMAGE

We thought you might like to share with us a few of the printable comments we've received on our goof up.

- **"Our experience has been, when someone steps on the screens, the small and soft rivets installed from the underside have a tendency to lose their heads, which then become ingested in the engine causing FOD and a considerable amount of unscheduled downtime."**
- **"The picture should be captioned, 'Worry no more. Let me show you how to bend this FOD screen while I get the dirt from my boots into this engine.'"**
- **"How many pilots and mechanics will walk around on the hood, trunk and top of their automobile?"**
- **"The only thing I got out of the picture was someone standing where he shouldn't, FOD-ing an engine to boot."**

If you have a caption for this photograph that you think will help make the FOD/safety point send it to Editor, *Aviation Digest*, P.O. Drawer P, Fort Rucker, AL 36362.

The *only* authorized walk area on the top of a UH-1H is the blue area. Standing on other cowling, flight controls, rotor components, etc., is not authorized.



DIRECT SOMEONE
TO
A
CAREER
IN
ARMY AVIATION
SEND THEM
ONE WAY
TO THEIR LOCAL
MILPO
MILITARY PERSONNEL OFFICE
FOR HELP